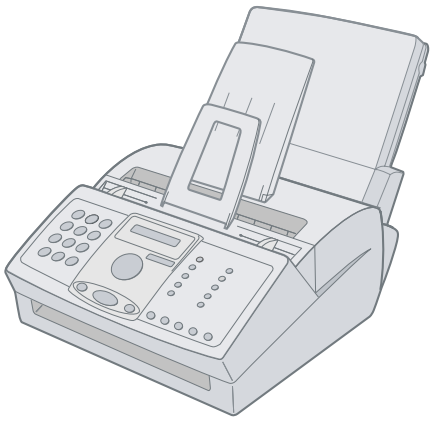
SHARP SERVICE MANUAL

No. 00ZF3150DESME



FACSIMILE

MODEL FO-3150

MODEL	SELECTION CODE	DESTINATION
FO-3150	DE	Germany
FO-3150	IT	Italy
FO-3150	SE	Sweden

CONTENTS

CHAPTER 1. GENERAL DESCRIPTION
[1] Specifications 1-1
[2] Operation panel..... 1-2
[3] Transmittable documents 1-3
[4] Installation 1-4
[5] Maintenance..... 1-11
[6] Troubleshooting 1-13
[7] Quick reference guide 1-14

CHAPTER 2. ADJUSTMENTS
[1] Adjustments 2-1
[2] Diagnostics and service soft switches..... 2-3
[3] Troubleshooting 2-27
[4] Error code table..... 2-28

CHAPTER 3. MECHANICAL DESCRIPTION
[1] Mechanical description..... 3-1
[2] Disassembly, assembly, lubrication..... 3-11

CHAPTER 4. DIAGRAMS
[1] Block diagram 4-1
[2] Wiring diagram 4-2
[3] Point- to-point diagram and connector signal name 4-3

CHAPTER 5. CIRCUIT DESCRIPTION
[1] Circuit description..... 5-1
[2] Circuit description of control PWB..... 5-1
[3] Circuit description of printer PWB (PCU) 5-12
[4] Circuit description of LIU PWB 5-22
[5] Circuit description of power supply PWB.....5-24
[6] Circuit description of CIS UNIT.....5-26

CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT
[1] Control PWB circuit 6-1
[2] LIU PWB circuit 6-11
[3] Printer PWB circuit 6-14
[4] Power supply PWB circuit 6-18
[5] Operation panel PWB circuit 6-20

CHAPTER 7. OPERATION FLOWCHART
[1] Protocol 7-1
[2] Power on sequence.....7-2

CHAPTER 8. OTHER
[1] Service tools 8-1
[2] Rewriting the Flash ROM 8-4

Parts Guide

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

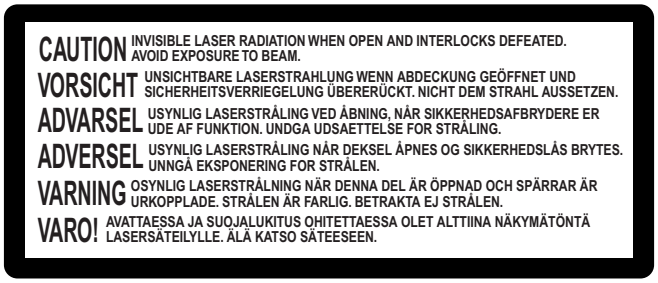
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

FO-3150DE/IT/SE

CAUTION

This laser facsimile is a class 1 laser product that complies with 21CFR 1040.10 and 1040.11 of the CDRH or IEC60825-1 standard. This means that this machine does not produce a hazardous laser radiation. The use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
This laser radiation is not a danger to the skin, but when an exact focusing of the laser beam is achieved on the eyes retina, there is danger of spot damage to the retina.
The following cautions must be observed to avoid exposure of the laser beam to your eyes at the time of servicing.

1)When a problem in the laser optical unit has occurred, the whole optical unit must be exchanged as a unit, not an individual part.
2)Do not look into the machine with the main switch turned on after removing the toner/developer unit and drum cartridge.
3)Do not look into the laser beam exposure slit of the laser optical unit with the connector connected when removing and installing the optical system.
4)The cover of Laser Printer Unit contains the safety interlock switch.
Do not defeat the safety interlock by inserting wedges or other items into the switch slot.


CAUTION INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERERÜCKT. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STRÅLING.
ADVERSEL USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARNING OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRRAR ÄR URKOPPLADE. STRÅLEN ÄR FARLIG. BETRAKTA EJ STRÅLEN.
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

Laser Wave Length : 780 ±15 nm
Laser Pulse Times : (13.95 ± 3 ms)/7mm
Laser Output Power : 0.3 mW ± 0.05mW

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type recommandé par le constructeur.
Mettre au rébut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfare vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

1. GENERAL

Automatic dialling	**Rapid Key Dialling:** 10 numbers **Speed Dialling:** 99 numbers
Memory size*	1.8 MB (approx. 100 average pages)
Modem speed	14,400 bps with auto fallback to lower speeds.
Transmission time*	Approx. 6 seconds (only when ECM is on)
Toner cartridge yield (continuous printing, 4% page coverage, A4 paper)	**Initial starter cartridge** (included with fax machine): Approx. 1,800 pages **Replacement cartridge FO-29DC:** Approx. 3,700 pages
Drum cartridge yield (continuous printing, 4% page coverage, A4 paper)	**Initial starter cartridge** (included with fax machine): Approx. 20,000 pages **Replacement cartridge (FO-29DR):** Approx. 20,000 pages
Scanning Resolution	**Horizontal:** 8 lines/mm **Vertical:** Standard: 3.85 lines/mm Fine /Halftone: 7.7 lines/mm Super fine: 15.4 lines/mm
Automatic document feeder	A4: 20 pages max. (80-g/m^2 paper)
Recording system	Laser
Halftone (grayscale)	64 levels
Compatibility	ITU-T (CCITT) G3 mode
Paper tray capacity	A4: Approx. 200 sheets of 70 g/m^2 copier paper, or 180 sheets of 80 g/m^2 copier paper (at room temperature; maximum stack height should not be higher than the line on the tray) Recommended paper weight: 70 g/m^2 Copy Bond
Compression scheme	MR, MH, MMR
Input document size	**Automatic feeding:** Width: 148 to 216 mm Length (20 pages): 140 to 297 mm Length (5 pages): 140 to 356 mm **Manual feeding:** Width: 148 to 216 mm Length: 140 to 600 mm
Effective scanning width	210 mm max.
Effective printing width	208 mm max.
Contrast control	Automatic/Dark selectable
Reception modes	TEL/FAX/AM
Copy function	Single/Multi/Sort (50 copies/page)
Applicable telephone line	Public switched telephone network / PBX
Display	16-digit LCD display
Power requirements	220-230 V AC, 50 Hz
Noise emission (DE)	Less than 70 dBA (measured according to EN 27779 (DIN 45635))
Operating temperature	10 - 30°C
Humidity	20 - 85% RH
Power consumption	Standby: 7.5 W Maximum: 840 W
Dimensions (without attachments)	Width: 327 mm Depth: 380 mm Height: 173 mm
Weight (without attachments)	Approx. 6.0 kg

Important:

- This fax machine is not designed for use on a line which has call waiting, call forwarding, or certain other special services offered by your telephone company. If you attempt to use the fax machine in conjunction with any of these services, you may experience errors during transmission and reception of facsimile messages.
- This fax machine is not compatible with digital telephone systems.

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviation from these values in individual units.

2. Life of consumable

Section	Part	Estimated Life	Replaced by
Toner cartridge	Replacement cartridge (FO-29DC)	3,700 prints (at A4/4% chart)	User
Drum cartridge	Replacement cartridge (FO-29DR)	20,000 prints (at A4/4% chart)	User
Paper feed	Transfer roller (Refer to the P/G No. 8-25) (NROLP7046XCZZ)	5 years	Service Engineer
Fuser	Fusing unit (Refer to the P/G No. 9-901) (DUNTW495CSC01)	5 years	Service Engineer
Paper transport	Feed roller (Refer to the P/G No. 1-30) (NROLR2333XHZZ)	Cleaning as needed	————
Unit	FO-3150	5 years or 30,000 prints of early either	————

[2] Operation panel

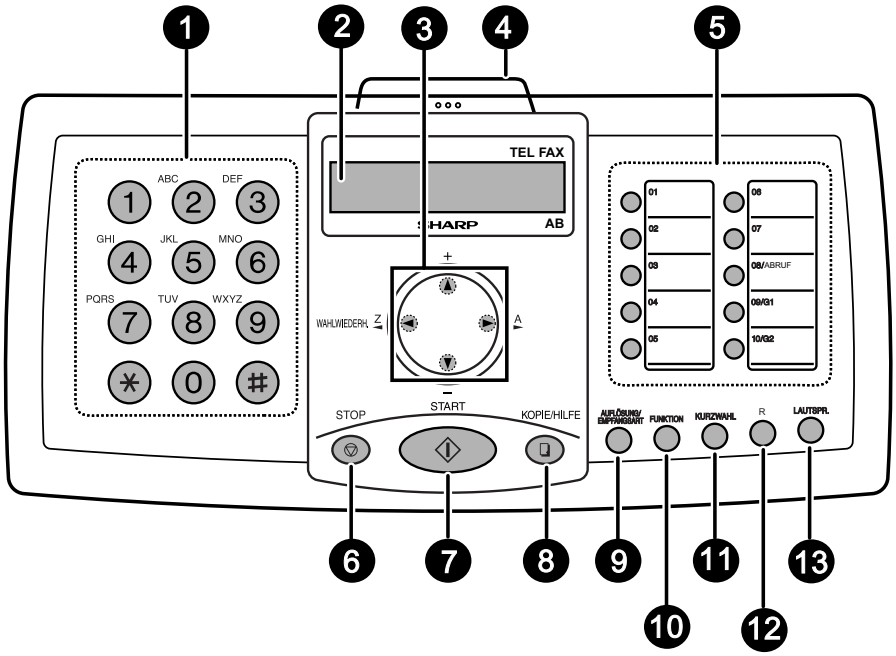


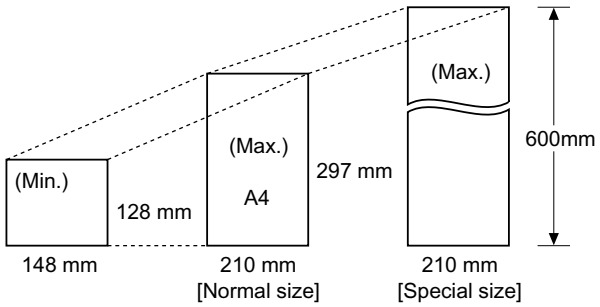
Illustration : FO-3150DE

1. **Number keys**
   Use these keys to dial numbers, and enter numbers and letters when storing auto-dial numbers.
2. **Display**
   This displays messages and prompts to help you operate the machine.
3. **Arrow keys**
   Use these keys to scroll through and select settings, and to search for auto-dial numbers. Press the left arrow key (**REDIAL**) to select the last number dialled.
4. **PANEL RELEASE**
   Pull this release to open the operation panel.
5. **Rapid Dial Keys**
   Press one of these keys to dial a fax number automatically.
6. **STOP key**
   Press this key to cancel an operation before it is completed.
7. **START key (DE:START) (IT:INVIO)**
   Press this key after dialling to begin fax transmission. The key can also be pressed in the date and time display to show the percentage of memory currently used.
8. **COPY/HELP key (DE:KOPIE/HILFE) (IT:COPIA/AIUTO)**
   When a document is in the feeder, press this key to make a copy of a document. At any other time, press this key to print out the Help List, a quick reference guide to the operation of your fax machine.
9. **RESOLUTION / RECEPTION MODE key (DE:AUFLÖSUNG./EMPFANGSART) (IT:RISOLUZIONE/MODO RICEZIONE)**
   When a document is in the feeder, press this key to adjust the resolution for faxing or copying. At any other time, press this key to select the reception mode (an arrow in the display will point to the currently selected reception mode).
10. **FUNCTION key (DE:FUNKTION) (IT:FUNZIONE)**
    Press this key followed by the arrow keys to select special functions and settings.
11. **SPEED DIAL key (DE:KURZWAHL) (IT:NR.VELOCE)**
    Press this key to dial a fax or voice number using an abbreviated 2-digit Speed Dial number.
12. **R key**
    If you are on a PBX, use this key to transfer calls and make enquiry calls. If the PBX is a flash-type PBX, use the key to dial out.
13. **SPEAKER key (DE:LAUTSPR.) (IT:LINEA)**
    Press this key to listen to the line and fax tones through the speaker when faxing a document.
    Note: **This is not a speakerphone.** It cannot be used to speak if a person answers.

[3] Transmittable documents

1. Transmittable documents

Normal size	width	148 - 210 mm
	length	128 - 297 mm



* With special sizes, only one sheet can be fed into the machine at a time. Insert next page into feeder as current page is being scanned.

2. Paper Thickness & Weight

		Product specifications	
	Indication	Lower Limit	Upper Limit
Weight indication	Metric system indication	52g/m^2	80g/m^2
Thickness indication	Metric system indication	0.06mm	0.1mm
Document size	Document size Range	Minimum (148mm x 128mm) A4 (210mm x 297mm)	
		Letter (216mm x 279mm)	
		Legal (216mm x 356mm)	
Number of ADF sheets	Document size Weight	Minimum ~ Letter/A4 size 20sheets	
		Legal 1 sheet	
		More than 90 kg Below 135kg 1 sheet	
Paper quality	Kind	Paper of fine quality/bond paper/ Kent paper	

3. Document Types

- Normal paper

  Documents handwritten in pencil (No. 2 lead or softer), fountain pen, ball point pen, or felt-tipped pen can be transmitted.

  Documents of normal contrast duplicated by a copying machine can also be transmitted.

- Diazo copy(blueprint)

  Diazo copy documents of a normal contrast may be transmitted.

- Carbon copy

  A carbon copy may be transmitted if its contrast is normal.

4. Cautions on Transmitting Document

- Documents written in yellow, greenish yellow, or light blue ink cannot be transmitted.
- Ink, glue, and correcting fluid on documents must be dry before the documents can be transmitted.
- •All clips, staples and pins must be removed from documents before transmission.
- Patched (taped) documents should be copied first on a copier and then the copies used for transmission.
- All documents should be fanned before insertion into the feeder to prevent possible double feeds.

5. Automatic Document Feeder Capacity

Number of pages that can be placed into the feeder at anytime is as follows:

A4 size: max. 20 sheets
Special size: single sheet only (manual feed)

NOTES:
- If you need to send or copy more 20 pages, place the additional pages and carefully in the feeder just before the last page is scanned. Do not try to force them in, as this may cause double-feeding or jamming.
- If your document consists of several large or thick pages which must be loaded one at a time, insert each page into the feeder as the previous page is being scanned. Insert gently to prevent doublefeeding.

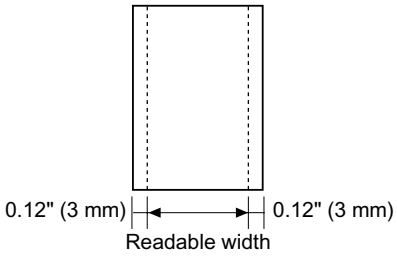
6. Readable Width & Length

The readable width and length of a document are slightly smaller than the actual document size.

Note that characters or graphics outside the effective document scanning range will not be read.

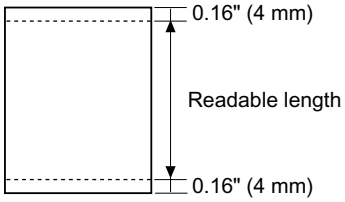
- **Readable width**

204 mm max



- **Readable length**

This is the length of the document sent minus 0.16” (4 mm) from the top and bottom edges.



[4] Installation

1. Site selection

Take the following points into consideration when selecting a site for this model.

ENVIRONMENT

- The machine must be installed on a level surface.
- Keep the machine away from air conditioners, heaters, direct sunlight, and dust.
- Provide easy access to the front, back, and sides of the machine. In particular, keep the area in front of the machine clear, or the original document may jam as it comes out after scanning.
- The temperature should be between 10º and 30ºC.
- The humidity should be between 20% and 85% (without condensation).

ELECTRICITY

AC 220 - 230 V AC, 50 Hz, grounded (2-prong) AC outlet is required.

Caution!

- Connection to a power source other than that specified will cause damage to the equipment and is not covered under the warranty.
- If your area experiences a high incidence of lightning or power surges, we recommend that you install a surge protector for the power and telephone lines. Surge protectors can be purchased at most telephone specialty stores

TELEPHONE SOCKET

A standard RJ11C telephone socket must be located near the machine.

This is the telephone socket commonly used in most homes and offices.

- Plugging the fax machine into a socket which is not an RJ11C socket may result in damage to the machine or your telephone system. If you do not know what kind of socket you have, or need to have one installed, contact the telephone company.

If the machine is moved from a cold to a warm place...

If the machine is moved from a cold to a warm place, it is possible that the reading glass may fog up, preventing proper scanning of documents for transmission. To remove the fog, turn on the power and wait approximately 2 hours before using the machine.·

2. Installing the toner cartridge

The laser printer in your fax machine uses a toner cartridge and a drum cartridge. The drum cartridge comes pre-installed, and the toner cartridge must be installed.

The starter toner cartridge included with your fax machine can print approximately 1,800 A4-size pages at 4% page coverage.

When replacing the toner cartridge, use a Sharp FO-29DC toner cartridge. One cartridge can print about 3,700 A4-size pages at 4% coverage.

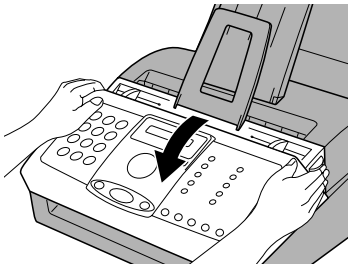
- The drum cartridge can print approximately 20,000 A4-size pages. When replacing the drum cartridge, use a Sharp FO-29DR drum cartridge.

Follow the steps below to install the toner cartridge and prepare the drum cartridge.

1. Grasp the print compartment cover at both sides as shown, and pull up to open the cover.

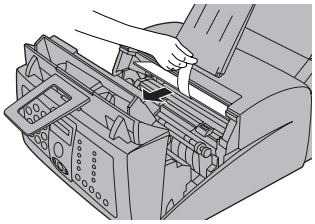
   • **Caution!**

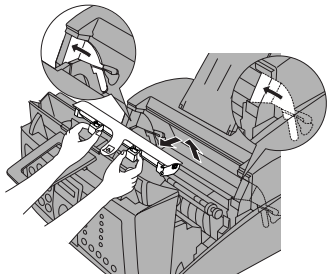
   The fusing unit inside the print compartment becomes very hot during operation. Do not touch the inside of the compartment or the paper guide on the underside of the print compartment cover.



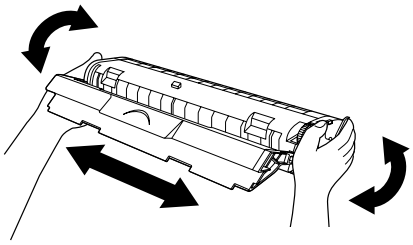
2. The drum cartridge has been installed at the factory. Remove the protective board from above the drum cartridge, and then grasp the tabs on the drum cartridge handle with both hands and gently pull the cartridge out of the machine. Remove the sheet of protective paper from the cartridge and then insert it back into the machine.

   • When removing the drum cartridge, be careful not to the tear the paper or leave any pieces of paper in the machine.

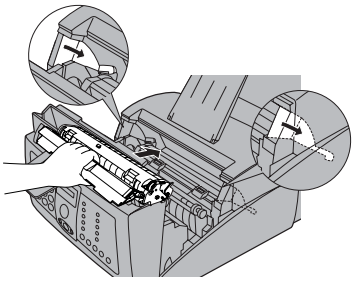




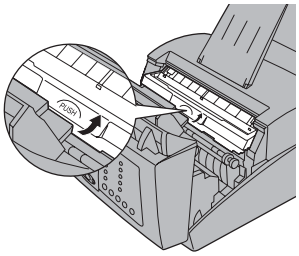
3. Remove the new toner cartridge from its packaging. Shake the cartridge side to side four or five times to distribute the toner evenly within the cartridge.



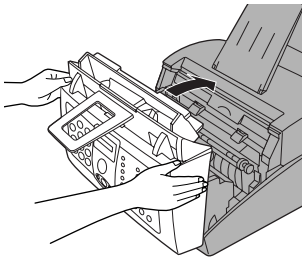
4. Hold the toner cartridge by the handle with the stamped markings on the cartridge facing upwards, and insert the cartridge into the print compartment.



5. Place your thumb on the center of the handle where it is marked **PUSH**, and push the handle down and in so that the cartridge fits into place.



6. Close the print compartment cover, pressing down firmly on each side to make sure it is completely closed.



7. Reset the toner counter and the drum counter as explained below.

Resetting the toner counter

Each time you install a new toner cartridge, follow the steps below to reset the toner counter to zero. (The machine uses the toner counter to inform you when the toner cartridge needs to be replaced.)

		Display:
1	**Press** FUNCTION **once and** ▼ **four times.**	PRINT SET-UP ▲▼
2	**Press** ► **once and** ▲ **twice.**	CLR TONER CNT. ▲▼
3	**Press** ► **once.**	PRESS START KEY
4	**Press** START **.**	CLR DRUM COUNT ▲▼
5	**Press** STOP **to exit.**	

Resetting the drum counter

Each time you install a new drum cartridge, follow the steps below to reset the drum counter to zero.

		Display:
1	**Press** FUNCTION **once and** ▼ **four times.**	PRINT SET-UP ▲▼
2	**Press** ► **once and** ▲ **once.**	CLR DRUM COUNT ▲▼
3	**Press** ► **once.**	PRESS START KEY
4	**Press** START **.**	RECEIVE RATIO ▲▼
5	**Press** STOP **to exit.**	

3. Replacing the drum cartridge

Viewing the total number of pages printed

To maintain excellent printing quality, we recommend that you replace the drum cartridge after 20,000 pages have been printed. Follow these steps to view the total number of pages printed:

		Display:
1	**Press FUNCTION once and ▼ four times.**	PRINT SET-UP ▲▼
2	**Press ► once and ▲ theree times.**	LIFE COUNTER ▲▼
3	**Press ► once. The count will appear in the display.**	
4	**When you are finished, press STOP to exit.**	

Replacing the drum cartridge

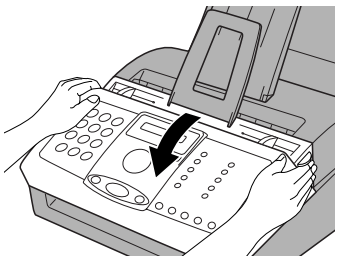
When 20,000 pages have been printed, DRUM LIFE OVER will appear in the display. Replace the drum cartridge with the following cartridge:

Sharp FO-29DR drum cartridge

1. Grasp the print compartment cover at both sides as shown, and pull up to open the cover.

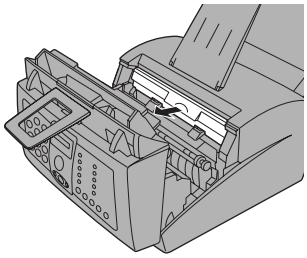
   • **Caution!**

   The fusing unit inside the print compartment becomes very hot during operation. Do not touch the inside of the compartment or the paper guide on the underside of the print compartment cover.

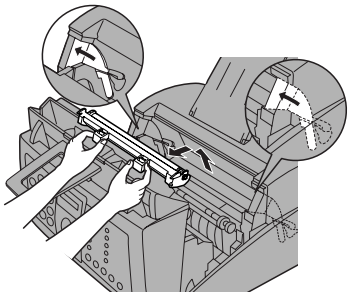


2. Grasp the finger hold on the toner cartridge handle where it is marked **PUSH**, and pull the handle out. Hold the handle and pull the toner cartridge out of the compartment.

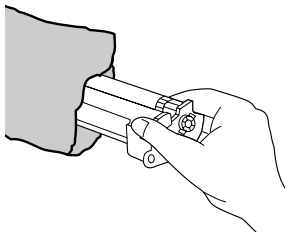
   • Place the toner cartridge on a sheet of paper on a level surface.



3. Grasp the tabs on the drum cartridge handle with both hands and gently pull the cartridge out of the machine.

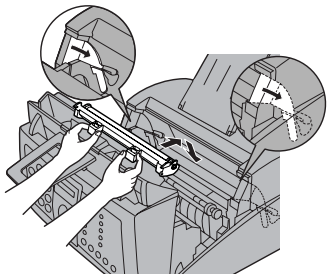


4. Remove the new drum cartridge from its packaging and then remove the sheet of protective paper from the drum cartridge.



5. Insert the drum cartridge into the print compartment, holding the tabs on the drum cartridge handle with both hands.

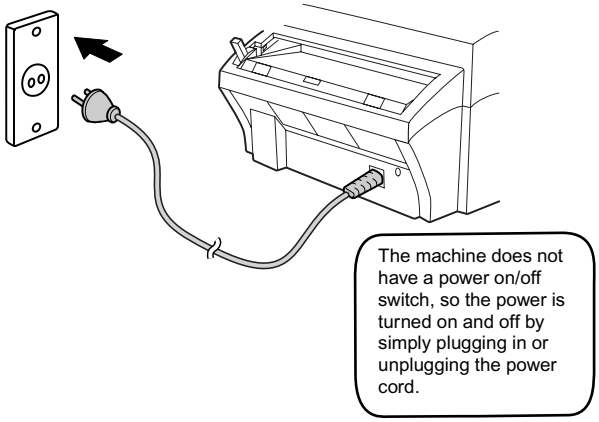
   • To insert the cartridge, align the guides on the cartridge with the runners on the sides of the compartment.



6. Replace the toner cartridge and close the print compartment cover. When finished, reset the drum cartridge counter.

4. Connections

1. **Connecting the power cord**
   Plug the power cord into a 220 - 230 V, 50 Hz, earthed AC (2-prong) outlet.


The machine does not have a power on/off switch, so the power is turned on and off by simply plugging in or unplugging the power cord.

2. **Connecting the telephone line cord**
   Insert one end of the line cord into the socket on the side of the machine marked **TEL. LINE**. Insert the other end into a wall telephone socket.

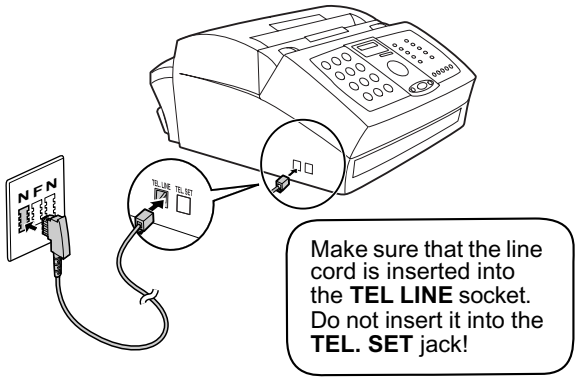
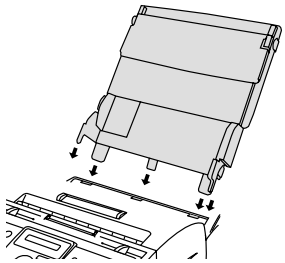


Illustration : FO-3150DE

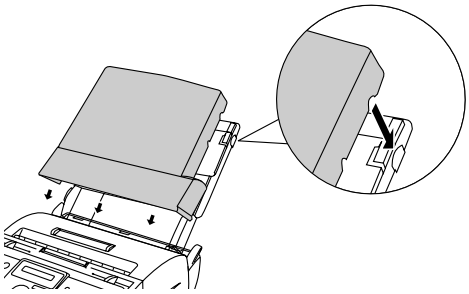
Note for Germany:
In Germany, the machine is supplied with a N-coded line cable, enabling you to use an extension (cordless) telephone on the same line. If you don't have the standard NFN-outlet of TELEKOM, you can purchase an NFN-adapter at your retailer.

Note:
If your area experiences a high incidence of lightning or power surges, we recommend that you install surge protectors for the power and telephone lines. Surge protectors can be purchased from your dealer or at most telephone specialty stores.

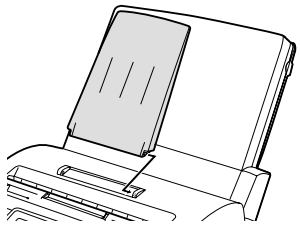
3. **Attaching the paper trays**
   1) Attach the paper tray.

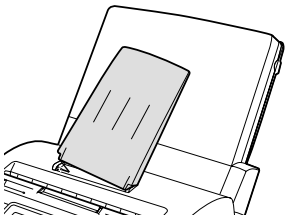


   2) Attach the paper tray cover.

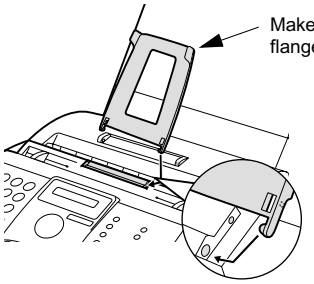


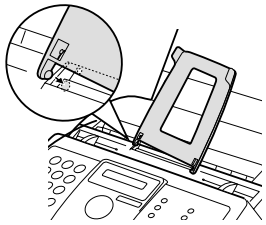
   3) Attach the received document tray.





4) Attach the original document support.





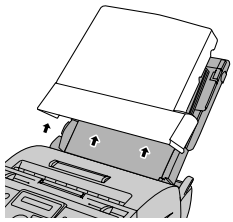
5. Loading Printing Paper

The paper tray holds A4 paper

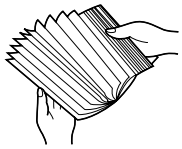
- Up to 200 sheets of 70 g/m^2 paper can be loaded.
- Up to 180 sheets of 80 g/m^2 paper can be loaded.

Caution!
Do not use the blank side of paper that has already been printed on.

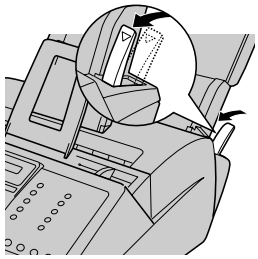
1. Remove the paper tray cover.



2. Fan the paper, and then tap the edge against a flat surface to even the stack.

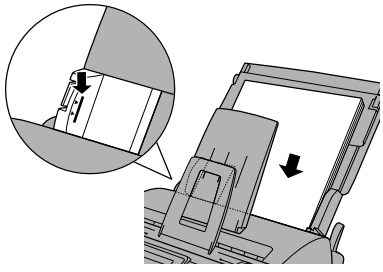


3. Pull the paper release lever toward you.

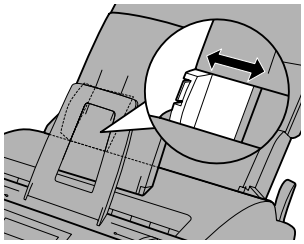


4. Insert the stack of paper **firmly** into the tray, **print side up**.
   - Make sure that the stack is not higher than the marked line. Loading too much paper may cause paper jams and misfeeds.
   - If paper remains in the tray, take it out and combine it into a single stack with the new paper before adding the new paper.

   Important:
   Be sure to load the paper so that printing takes place on the **print** side of the paper. Printing on the reverse side may result in poor print quality.

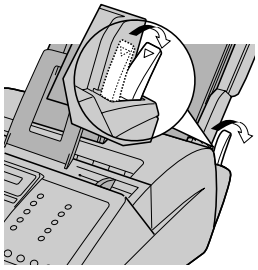


5. Make sure the stack of paper is aligned against the right paper guide, and then gently move the left paper guide to the **A4** position for A4 paper.

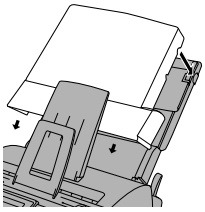


6. Push the paper release lever back down.

   • **Note:** If the paper does not feed correctly, remove the entire stack from the tray and repeat the loading procedure from the beginning.



7. Replace the paper tray cover.

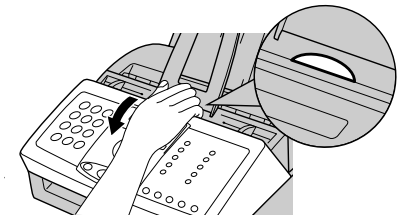


6. Clearing jammed document

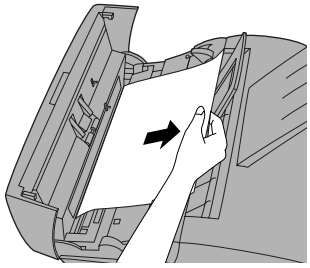
If the original document doesn't feed properly during transmission or copying, or DOCUMENT JAMMED appears in the display, first try pressing the **START** key. If the document doesn't feed out, open the operation panel and remove it.

Important:
Do not try to remove a document without opening the operation panel. This may damage the feeder mechanishm .

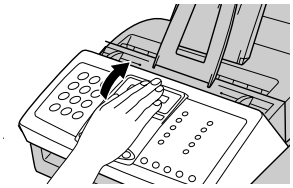
1. Open the operation panel by grasping the panel release and pulling up.



2. Remove the document.

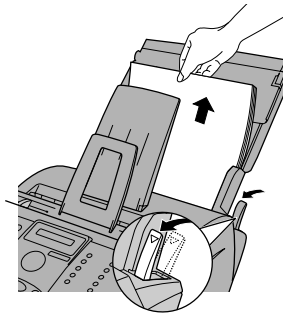


3. Close the operation panel, making sure it clicks into place.



7. Clearing jammed printing paper

1. If most of the jammed page is protruding from the back of the fax, remove the paper tray cover, pull the paper release lever toward you, and try pulling the page out.

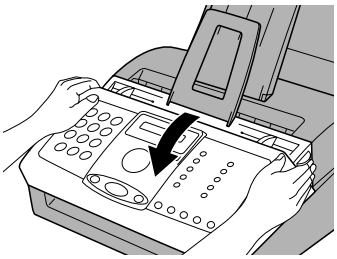


2. If the jammed page comes out, take out the rest of the paper in the tray, straighten the stack, put it back in the paper tray, and push down the paper release lever. Replace the paper tray cover.

   • If you are unable to clear the jam in this way, continue with the following steps.

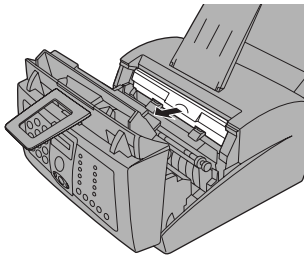
3. Grasp the print compartment cover at both sides as shown, and pull up to open the cover.

   • **Caution!**
   The fusing unit inside the print compartment becomes very hot during operation. Be careful not to touch the inside of the compartment.

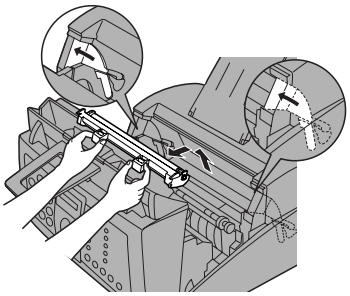


4. Grasp the the finger hold on the toner cartridge handle where it is marked PUSH, and pull the handle out. Rehold the handle and pull the toner carteidge out of the compartment.

   • Place the toner cartridge on a sheet of paper on a level surface.



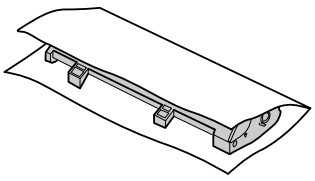
5. Grasp the tabs on the drum cartridge handle with both hands and gently pull the cartridge out of the machine.



6. Wrap the drum cartridge in a large sheet of paper as shown at right so that the green drum section is shielded from light, and place it gently on a level surface.

   • Do not touch the green drum in the drum cartridge. This will damage the drum surface.

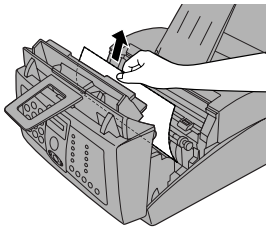
   • Do not expose the drum to direct light. This will damage the drum.

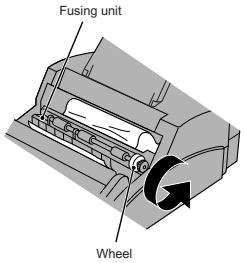


7. Gently pull the jammed paper out of the machine.

   • If needed, turn the wheel on the right side of the fusing unit to eject the paper from the machine.

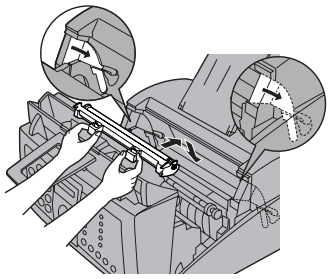
   • **Caution!**
   Do not use excessive force to pull the jammed paper out. If the paper tears and a piece remains inside the machine, a service call may be necessary to remove the remaining piece.





8. Replace the drum cartridge, holding the tabs on the drum cartridge handle with both hands.

   • To insert the cartridge, align the guides on the cartridge with the runners on the sides of the compartment.



9. Replace the toner cartridge and close the print compartment cover.

[5] Maintenance

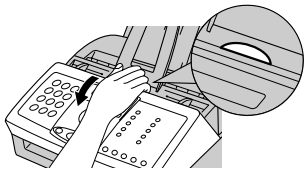
1. Scanning glass and rollers.

Clean the scanning glass and rollers frequently to ensure that your transmitted images and copies are of the highest quality.

Open the operation panel (grasp the panel release and up), and wipe the scanning glass, rollers and white backplate with a soft cloth.

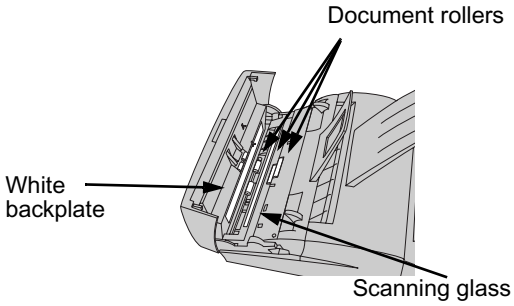
- Make sure that all dirt and stains (such as correcting fluid) are removed, as dirts and stains will cause vertical lines on transmitted images and copies.

1. Squeeze the panel release and open the operation panel.



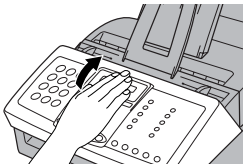
2. Wipe the scanning glass (under the white roller) and rollers with a cotton swab.

- Make sure that all dirt and stains (such as correcting fluied) are removed. Dirt and stains will cause vertical lines on transmitted images and copies.



If the scanning glass is difficult to clean
If you find it difficult to remove dirt from the scanning glass, you can try moistening the swab with isopropyl alchol or denatured alcohol. Take care that no alcohol gets on the rollers.

3. Close the operation panel.



2. The housing.

Wipe the external parts and surface of the machine with a dry cloth.

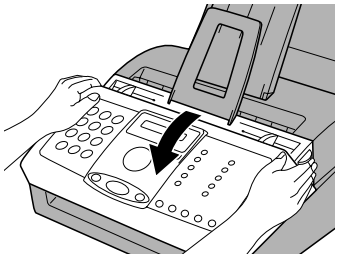
• **Caution!**
Do not use benzene or thinner. These solvents may damage or discolor the machine.

3. Cleaning the drum cartridge.

If you find that characters or parts of an image are missing from your printed pages, the drum in the drum cartridge may need cleaning. Follow the steps below to clean the drum.

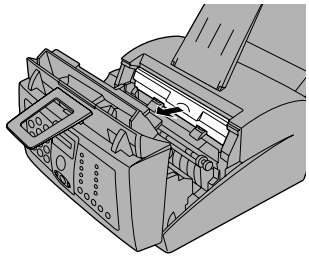
1. Grasp the print compartment cover at both sides as shown, and pull up to open the cover.

• **Caution!**
The fusing unit inside the print compartment becomes very hot during operation. Do not touch the inside of the compartment or the paper guide on the underside of the print compartment cover.

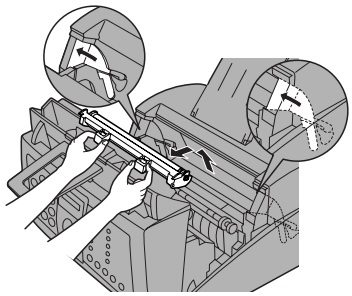


2. Grasp the finger hold on the toner cartridge handle where it is marked **PUSH**, and pull the handle out. Rehold the handle and pull the toner cartridge out of the compartment.

• Place the toner cartridge on a sheet of paper on a level surface.

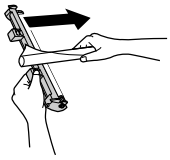


3. Grasp the tabs on the drum cartridge handle with both hands and gently pull the cartridge out of the machine.

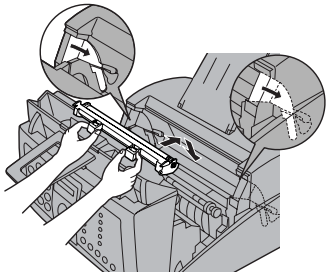


4. Take a sheet of clean paper and roll it into a tube. Roll it tightly so that the diameter of the holes at each end is less than the thickness of your little finger.

5. Gently wipe the surface of the drum with the rolled-up paper to remove any particles of toner caked on the drum.
   - Do not let the drum surface come into contact with anything other than the rolled-up paper. Fingerprints, water, alcohol, and other solvents will damage the drum surface.
   - Do not touch the drum surface with the edges of the rolled-up paper.



6. Replace the drum cartridge, holding the tabs on the drum cartridge handle with both hands.
   - To insert the cartridge, align the guides on the cartridge with the runners on the sides of the compartment.



7. Replace the toner cartridge and close the print compartment cover.

[6] Troubleshooting

1. Message and Signals

1. **Display messages**

ADD PAPER & / PRESS START KEY (alternating messages)	Check the printing paper. If the tray is empty, add paper and then press the **START** key. If there is paper in the tray, make sure it is inserted correctly (take out the stack, align the edges evenly, and then reinsert it in the tray) and then press the **START** key.
COVER OPEN	The print compartment cover is open. Close it.
DIAL WAITING	Dialling is not possible because the fax machine is sending or receiving a fax, or an extension phone is being used.
DOCUMENT JAMMED	The original document is jammed. See the following section, Clearing Paper Jams . Document jams will occur if you load more than 20 pages at once or load documents that are too thick . The document may also jam if the receiving machine doesn't respond properly when you attempt to send a fax.
DRUM LIFE OVER	This appears when the drum cartridge needs replacement.
FAX RX IN MEMORY	A fax has been received in memory because the toner cartridge needs replacement, you have run out of printing paper, or the paper is jammed. The fax will print out automatically when the problem is fixed.
FUNCTION MODE	The **FUNCTION** key has been pressed.
GROUP SPACE FULL	This appears if you attempt to program a Group Key when all Group Keys have already been programmed.
HEATER HIGH/ HEATER LOW/ HEATER ERROR	If one of these messages appears, unplug the power cord and then plug it back in. If the message still appears, call for service.
LINE ERROR	Transmission or reception was not successful. Press the **STOP** key to clear the message and then try again.
LINE IS IN USE	An extension phone connected to the fax is being used. Do not attempt transmission at this time, as this will interrupt the conversation on the extension phone.
MEMORY IS FULL	If faxes have been received to memory because printing is not possible (an additional message will indicate the problem), resolve the problem so that printing can continue.
MEMORY PRINTING	The fax is preparing to or printing out a document from memory.
NO # STORED	This appears if you attempt to search for an auto-dial number when none have been stored.
ON HOOK DIAL	The **SPEAKER** key has been pressed and the fax machine is waiting for you to dial.
PAPER JAMMED	The printing paper is jammed.
POLYGON ERROR	If this message appears, unplug the power cord and then plug it back in. If the message still appears, call for service.
PRINTER ERROR	A printer error has occurred. Open the printer compartment cover, make sure the toner cartridge is installed correctly, and then close the cover.
READY TO SEND	A document has been loaded and the fax machine is waiting for you to begin faxing or copying.
RECALLING	This appears if you attempt to send a fax by automatic dialing and the line is busy or the receiving fax machine does not answer. Your fax machine will automatically reattempt the call.
TONER EMPTY/ REPLACE TONER/ CLR TONER COUNT (alternating messages)	The toner cartridge must be replaced. Printing is not possible until the toner cartridge is replaced.
TONER NEAR EMPTY	The toner cartridge is almost out of toner (approximately 100 pages can be printed).
TOTAL PAGE(S) 01	Number of pages transmitted, received, or copied.

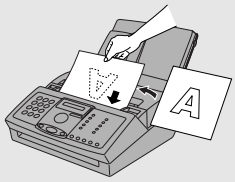
2. **Audible signals**

Continuous tone	3 seconds	Indicates the end of transmission, reception, or copying.
Intermittent tone (3 beeps)	5 seconds (1 second on, 1 second off)	Indicates incomplete transmission, reception, or copying.

[7] Quick reference guide

Sending Faxes

Place your document (up to 20 pages) face down in the document feeder.



Normal Dialling

1. Press SPEAKER .
2. Dial the fax number.
3. When you hear the fax reception tone, press START .

Rapid Key Dialling

Press the appropriate Rapid Key. Transmission will begin automatically.

Speed Dialling

1. Press SPEED DIAL .
2. Enter the 2-digit Speed Dial number.
3. Press START .

Search Dialling

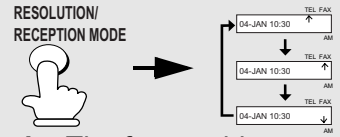
1. Press A or REDIAL Z until the desired destination appears in the display.
2. Press START .

Direct Keypad Dialling

1. Dial the fax number.
2. Press START .

Receiving Faxes

Press RESOLUTION/ RECEPTION MODE until the arrow in the display points to the desired reception mode.



FAX mode: The fax machine automatically answers and receives faxes.

TEL mode: Answer all calls (even faxes) by picking up an extension phone connected to the same line. To begin fax reception, press START .

AM mode: Select this mode when you want to use an answering machine that is connected to the fax.

Storing Auto Dial Numbers

1. Press FUNCTION once and ► once.
2. Enter a 2-digit Speed Dial number (01 to 99; 01 to 10 for Rapid Key Dialling).
3. Enter the fax number and press START .
4. Enter a name by pressing number keys. (To enter two letters in succession that require the same key, press ► after entering the first letter.)

SPACE = 1	G = 4	N = 66	U = 88
A = 2	H = 44	O = 666	V = 888
B = 22	I = 444	P = 7	W = 9
C = 222	J = 5	Q = 77	X = 99
D = 3	K = 55	R = 777	Y = 999
E = 33	L = 555	S = 7777	Z = 9999
F = 333	M = 6	T = 8	

5. Press START and then STOP .

CHAPTER 2. ADJUSTMENTS

[1] Adjustments

General

Since the following adjustments and settings are provided for this model, make adjustments and/or setup as necessary.

1. Adjustments

Adjustments of output voltage (FACTORY ONLY)

1. Install the power supply unit in the machine.
2. Set the recording paper and document.
3. When the document is loaded, power is supplied to the output lines. Confirm that outputs are within the limits below.

Output voltage settings

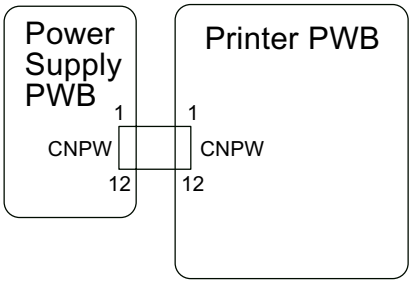


Fig. 1

Output	Voltage limits
+5V	4.75V~5.25V
+24VH	23.04V~24.96V
+24V*	23.04V~24.96V

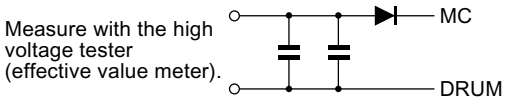
PIN No.	Connector No. CNPW
1	+5V
2	DG
3	DG
4	+24VH
5	MG
6	MG
7	+24VS
8	PWRLY–
9	HLON–
10	+24V
11	+24V
12	ZC

2. High voltage power adjustments

The high voltage power adjustments are composed of the MC output voltage adjustment and the DC bias output voltage adjustment. Either adjustment is performed with the diag function. (MAIN CHG ADJUST MODE)

1. MC output voltage adjustment

   In the measurement circuit shown below, adjust VR1 to be –1050V ~ –1200V (aim at –1100V)



- Capacitor: 1000pF/3KV (VCKYQY3FB102K)
- Diode: SHV-03 (VHDSHV03///-1)

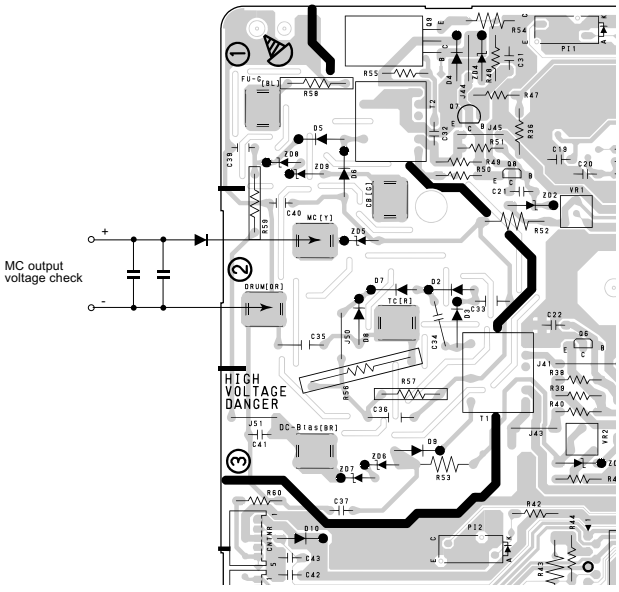
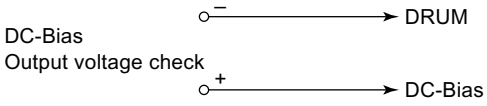


Fig. 2

2. DC bias output voltage adjustment

   Adjust VR2 so that the output voltage is –310V ±5V

   For measurement, use the high voltage tester (effective value meter).



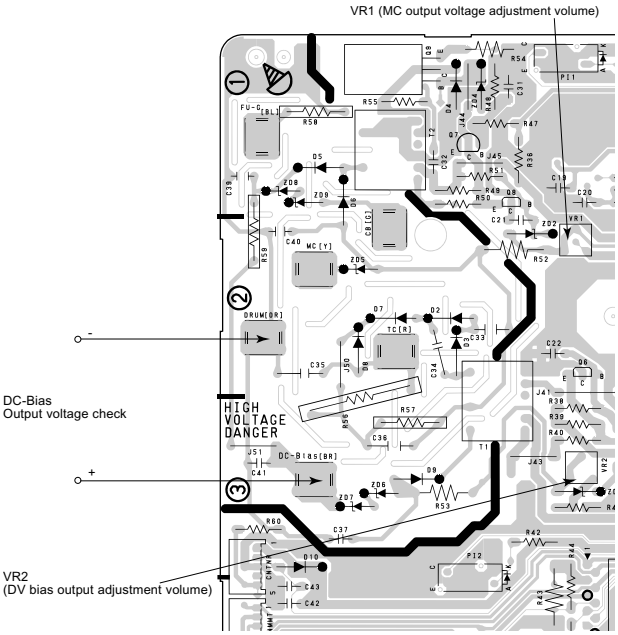


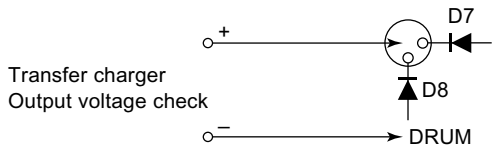
Fig. 3

3. Transfer charger voltage check

   After MC output voltage adjustment and DC bias output voltage adjustment, check transfer charger voltage.

   Check that the output voltage is +3200V ~ +3700V.

   For measurement, use a high voltage tester (effective value meter).



NOTE: For measurement, do not remove Printer PWB from the bottom plate.

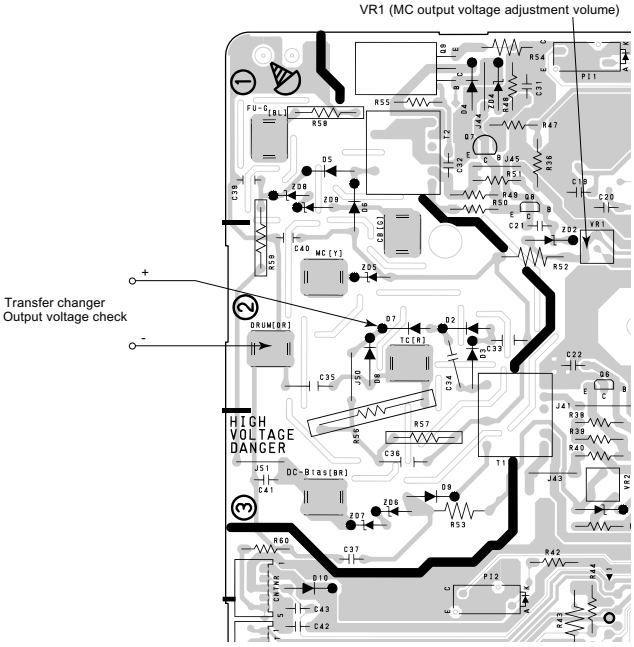
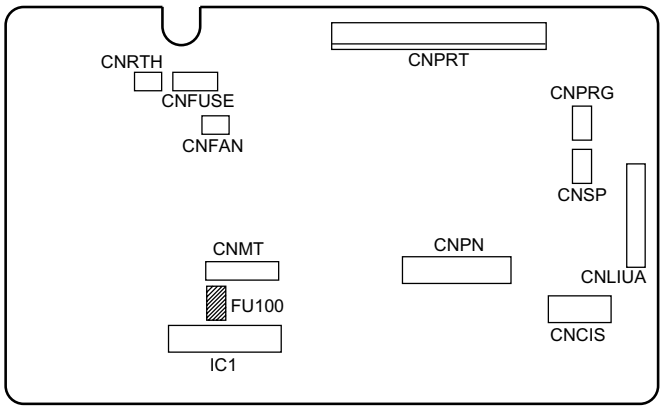


Fig. 4

3. IC protectors replacement

ICPs (IC Protectors) are installed to protect the motor driver circuit. ICPs protect various ICs and electronic circuits from an overcurrent condition.

The location of ICPs are shown below:



Control PWB (Bottom side)

Fig.5

1) FU100 (KAB2402) is installed in order to protect IC's from an overcurrent generated in the motor drive circuit. If FU100 is open, replace it with a new one.

4. Settings

4.1. Dial mode selector

OPTION SETTING: DIAL MODE (Soft Switch No. SW2 DATA No.1) Use this to set the fax machine to the type of telephone line you are on.

- The factory setting is "TONE".

(step 1) Select "OPTION SETTING".

KEY: [FUNCTION] (▼) (▼) (▼)

DISPLAY: [OPTION SETTING ▲▼►]

KEY: (►)

(step 2) Select "DIAL MODE".

KEY: Push (▼) until " [DIAL MODE] " is indicated because the number of (▼)s changes by the models and press (►) key.

DISPLAY: [1= TONE, 2= PULSE]

(step 3) Select, using "1" or "2".

KEY: (1)

DISPLAY: [TONE SELECTED]

KEY: (2)

DISPLAY: [PULSE SELECTED]

(step 4) End, using the "STOP" key.

KEY: [STOP]

[2] Diagnostics and service soft switches

1. Operating procedure

Two kinds of diagnoses are supported.

1.1. Fax diagnosis

This diagnosis is concerned with the main body of fax which is used for production and service support.

Entering the diagnostic mode

Press [FUNC] → [9] → [✳] → [8] → [#] → [7], and the following display will appear.

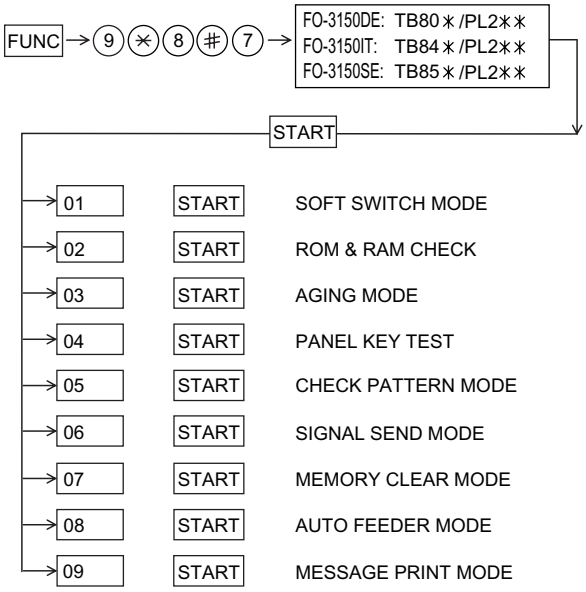
	DIAG MODE
FO-3150DE:	TB80✳/PL2✳✳
FO-3150IT:	TB84✳/PL2✳✳
FO-3150SE:	TB85✳/PL2✳✳

FAX ROM Version — Printer ROM version

Then press the [START] key.("GERMANY" is indicated for one second. (DE only)) Select the desired item with the [✳] key and the [#] key or select with the rapid key.

Enter the mode with the [START] key.

(Diag •specifications)


FUNC → 9 ✳ 8 # 7 →
FO-3150DE: TB80✳/PL2✳✳
FO-3150IT: TB84✳/PL2✳✳
FO-3150SE: TB85✳/PL2✳✳
START
01 START SOFT SWITCH MODE
02 START ROM & RAM CHECK
03 START AGING MODE
04 START PANEL KEY TEST
05 START CHECK PATTERN MODE
06 START SIGNAL SEND MODE
07 START MEMORY CLEAR MODE
08 START AUTO FEEDER MODE
09 START MESSAGE PRINT MODE

1.2. Print diagnosis

This diagnosis is concerned with the print which is used for production and service support.

Entering the diagnostic mode

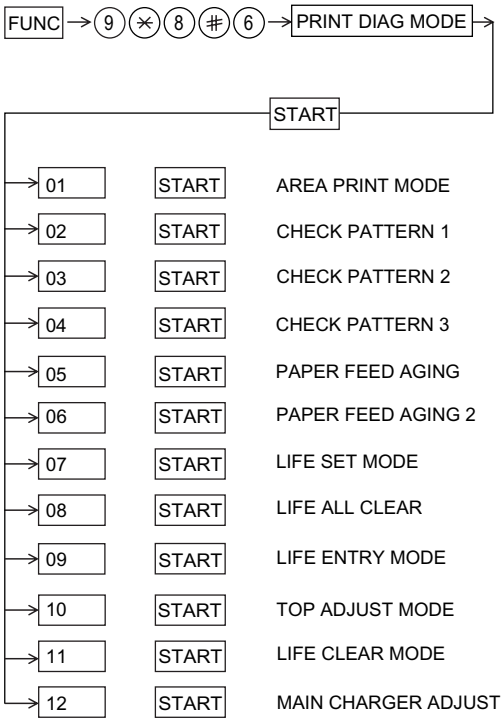
Press [FUNC] → [9] → [✳] → [8] → [#] → [6] , and the following display will appear.

[PRINT DIAG MODE]

Then press the [START] key. Select the desired item with the ▲ key and the ▼ key or select with the rapid key.

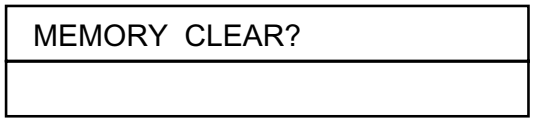
Enter the mode with the [START] key.

(Diag•specifications)


FUNC → 9 ✳ 8 # 6 → PRINT DIAG MODE
START
01 START AREA PRINT MODE
02 START CHECK PATTERN 1
03 START CHECK PATTERN 2
04 START CHECK PATTERN 3
05 START PAPER FEED AGING
06 START PAPER FEED AGING 2
07 START LIFE SET MODE
08 START LIFE ALL CLEAR
09 START LIFE ENTRY MODE
10 START TOP ADJUST MODE
11 START LIFE CLEAR MODE
12 START MAIN CHARGER ADJUST

Memory clear when power is turned on

Pressing the STOP keys, turn on the main power, and the following message will be displayed.



Press START key, the memory will be cleared to be ready for operation.

Press COPY key, the memory will be cleared to be ready for process check.

If press the other keys, it will continue ready for operation as it is.

2. Diagnostic items description

2.1. Fax diagnosis

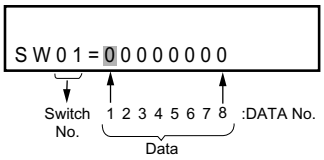
2.1.1 Soft switch mode

The soft switches are provided so that each operation mode can be set by using the operation panel.

In this mode, these switches can be checked and set.

The contents of these switches are backed up.

Soft switch mode screen



1. Switch number selection
   - Press START key for setting of the next soft switch. If the soft switch number is the final, pressing START key will exit the soft switch mode.
   - Enter two digits of a soft switch number to set the switch number.

2. Data number selection

   The cursor position shows the data to be set.

   Pressing # key moves the cursor to the right.

   Pressing ✳ key moves the cursor to the left. If, however, the cursor is on data number 1, pressing ✳ key shifts the cursor to data number 1 of the former switch number. If the switch number is 1, pressing ✳ key will not move the cursor and the error buzzer will sound.

3. Data setting method

   Press the FUNCTION key, and the data at the position of the cursor will be reversed to 0 when it is 1, or to 1 when it is 0. (If the soft switch can not be changed at the bit the error buzzer will sound with the process not received.), When you press the START key and the cursor moves to the next switch position, the changes in the contents of the previous switch position will be saved. If you do not want to save your changes, press the STOP key

4. Outputting method of soft switch list

   In the soft switch mode, press the COPY/HELP key, and the soft switch list will be output.

   If the recording paper runs out or is clogged, condition is held until recording paper is prepared, and an error buzzer doesn't ring.

2.1.2 ROM & RAM check

ROM executes the sum check, and RAM executes the matching test.

If any error occurs, the buzzer will inform it. (Refer to the following table). Finally, the result will be printed.

Number of buzzer sounds	Device checked
1 time <Short sound>	MAIN ROM
2 times <Short sounds>	S-RAM or D-RAM

The buzzer beep pattern is: on for 0.25 seconds and then off for 0.25 seconds.

2.1.3 Aging mode

If any document is set up in the first state (when started), copying will be executed. If it is not set up, "check pattern" of the print diagnosis is output at the intervals of 1 sheet/5 minutes. (A total of 10 sheets are output.)

2.1.4 Panel key test

This is used to check whether each key is normally operated or not. According to the key input, LCD is displayed.

1) When the START key is pressed while PANEL KEY TEST is being displayed, a test will start.
2) Press all of the keys one at a time, but do not press the STOP key. Every time a key is pressed, the name of that key will appear in the display.
3) Finally, press the STOP key and result was printed.

2.1.5 Check pattern mode

The effective printing area used will be according to the size specified.

A copy of a pattern will be printed, and the printing will be complete.

2.1.6 Signal send mode

This mode is used to send various signals to the circuit during FAX communication. Every push of START key sends a signal in the following sequence.

[1]	No signals (CML-ON)	[9]	7200bps (V. 29)
[2]	14400bps (V. 33)	[10]	4800bps (V27ter)
[3]	12000bps (V. 33)	[11]	2400bps (V27ter)
[4]	14400bps (V. 17)	[12]	300bps (FLAG)
[5]	12000bps (V. 17)	[13]	2100Hz (CED)
[6]	9600bps (V. 17)	[14]	1100Hz (CNG)
[7]	7200bps (V. 17)	[15]	END
[8]	9600bps (V. 29)		

2.1.7 Memory clear mode

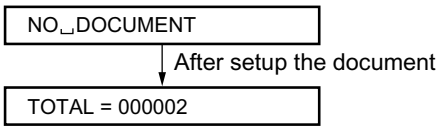
This mode is used to clear the backup memory and to reset to the factory default setting.

The content of each setting will be cleared. Then, the initialized list be output.

2.1.8 Auto feeder mode

The auto feed function can be checked by inserting and discharging the document. (After entering this mode, when a document is placed in the machine and the START key is pressed, the operation will start.)

After this mode is activated, TOTAL FEED COUNT displayed when the document sensor is turned.



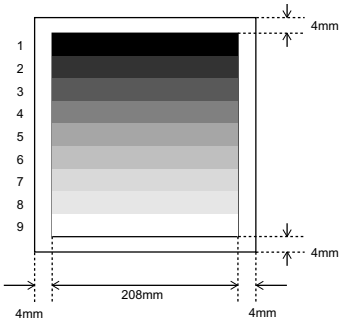
2.1.9 Message print

In this mode, all the message data which are used for displaying indication and list print are printed as a contrast table of the selected language and English

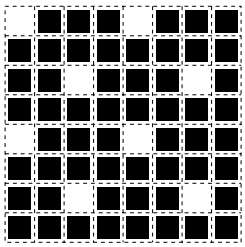
2.2. Print diagnosis

2.2.1 Rapid key 01: Area print mode

The effective printing area frame is printed in the specified sheet size.

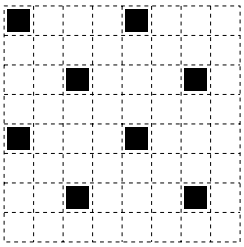


1. [Full black pattern]
2. [Intermediate tone 2 pattern]



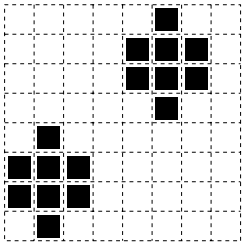
The left pattern is repeated.

3. [Intermediate tone 1 pattern]



The left pattern is repeated.

4. [Mesh point pattern]



The left pattern is repeated.

5. [Longitudinal strip 2 pattern

   Black 2 dot and white 2 dot are repeated in line.
6. [Lateral strip 2 pattern]

   Black 2 line and white 2 line are repeated.
7. [Longitudinal strip 1 pattern]

   Black 1 dot and white 1 dot are repeated in line.
8. [Lateral strip 1 pattern]

   Black 1 line and white 1 line are repeated.
9. [Full White pattern]

2.2.2 Rapid key 02: Check pattern 1

The lateral stripe 2 pattern is printed on one sheet.

(Black 2 line and white 2 line are repeated.)

2.2.3 Rapid key 03: Check pattern 2

The lateral stripe 2 pattern is printed on multiple pages.

Press the STOP key to end the printing.

2.2.4 Rapid key 04: Check pattern 3

The intermediate tone 1 is printed on one sheet.

2.2.5 Rapid key 05: Paper feed aging

The mode is used for aging related to the printing. In this mode, the following modes are provided.

1. Blank paper aging mode (ALL WHITE AGING)
2. Whole black print aging mode (ALL BLACK AGING)
3. 4% printing aging mode (4% AGING)

After selecting the paper-feed aging mode in the print diagnosis mode,input the number of each mode above with the ten-key, and the mode will be executed. The detailed specifications of each mode are described as follows. Here, the operation in each mode is stopped only when the STOP key is pressed by the operator or a printing-impossible error occurs.

- Blank paper aging mode (ALL WHITE AGING)

  In the mode, printing is continued in the whole white (white paper) printing pattern until the STOP key is pressed by the operator. (In the printing area)

- Whole black printing aging mode (ALL BLACK AGING)

  In the mode, printing is continued in the whole black (whole black) printing pattern until the STOP key is pressed by the operator. (In the printing area)

- 4%printing Aging Mode (4%AGING)

2.2.6 Rapid key 06: Paper feed aging 2

This is a mode that is used for aging related to printing and there are following modes.

1. Printer pattern

   1) All Black 2) All White
   3) Check pattern 4 (Outer frame) 4) 4% chart pattern

2. Print interval (Time between finishing and starting the printing.)

   Settable range : 1-999 seconds

3. Number of print repetitions (Number of repetitions.)

   Settable range : 1-9999 times

4. Number of printouts (Number of serial printings at a time.)

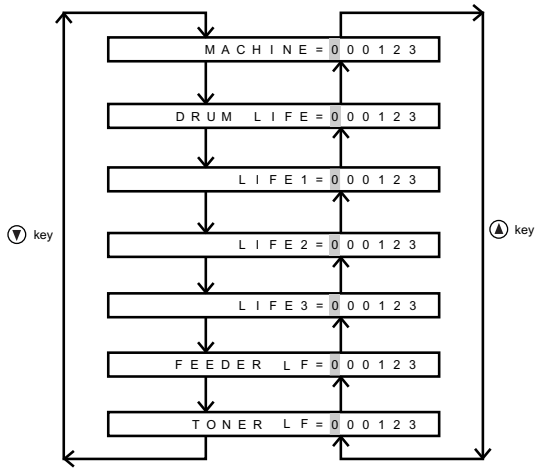
   Settable range : 1-99 sheets

To execute, enter the above items with the ten keys after selecting the mode. Refer to "Paper feed aging 1" for the details of print patterns. In any of the mode, the operation will be interrupted only when the "STOP" key is pressed by the operator or an error which makes printing impos sible occurs.

2.2.7 Rapid key 07: Life set mode

The mode is used to set the life counter of the printer and the counter of the auto feeder at desired values. For setting, proceed with the following procedure.

1. When the life counter setting mode is selected, the following will be is displayed.



   The cursor blinks at the top data.

   Seven counters can be selected with the " ▼ " and " ▲ " keys.

2. In the state 1, input a desired setting number of 6 digits with the ten-key.
3. After input of 6 digits, press START key.
4. "STORED" will be displayed with the set values stored into the memory. For checking, retry this mode. If desired, shift to another counter with the ▼ key and ▲ keys as necessary.

NOTE: This counter indicates the printer use conditions such as numbers of printed pages from the beginning of use. In the normal memory clear condition, the counter will not be reset. In conditions including damaged memory contents caused by repairing the panel, this counter should be reset or cleared in addition to the ordinary memory clear.

2.2.8 Rapid key 08: Life all clear

The mode is used to clear the life counter of the printer of the counter of the auto feeder.

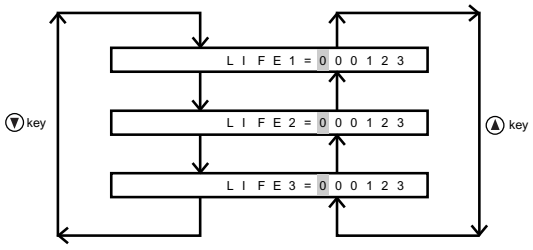
NOTE: The counter shows the operational state of the printer (e.g. how many sheets have been printed since start of use?). The ordinary memory does not reset the counter. Accordingly, it is necessary to reset this counter in addition to the ordinary memory clear if the content in the memory on the control PWB is broken because of PWB repair, etc. (In the production stage, it is necessary to execute this in the last process.)

2.2.9 Rapid key 09: Life entry mode

(For Serviceman temporary counter)

The mode is used to set a desired value for the judgment value (alarm judgment counter value) of the general purpose life counters 1 thru 3 of the printer. If the life of a consumable part (developer, imprinter, etc) is set, the model which has the error display and RMS function will inform RMS when the counter reaches the set value. For setting, proceed with the following procedure.

1. When the life counter entry mode is selected, the following will be displayed.



The cursor blinks at the top data.

Three counters can be selected with the " ▼ " and " ▲ " keys.

2. In the state 1, input a desired setting number of 6 digits with the ten-key.
3. After input of 6 digits, press the START key.
4. "STORED" will be displayed with the set values stored into the memory. For checking, retry this mode.

If desired, shift to another counter with the ▼ key and ▲ keys as necessary.

NOTE: The counter shows the operational state of the printer (how many sheets have been printed since start of use? and others). The ordinary memory does not reset the counter. Accordingly, it is necessary to reset the counter or do the clear process in addition to the ordinary memory clear if the content in the memory on the control PWB is broken because of PWB repair, etc. (In the production stage, it is necessary to execute this in the last process.)

2.2.10 Rapid key 10: Top adjust mode

Adjust the top margin for printing on a page. You can enter any value from 0 to 99 using the ten-key keypad.

The standard (initial) value is 50.

When the setting is increased, the print start position will be moved closer to the beginning of page.

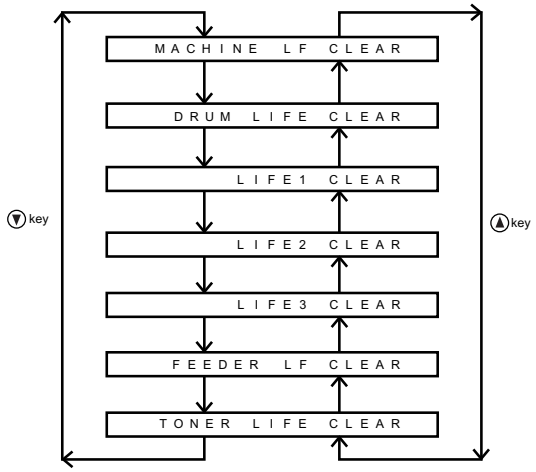
When the setting is decreased, the print start position will be moved further away from the beginning of page.

2.2.11 Rapid key 11: Life clear mode

The mode is used to respectively clear the life counter of the printer and the counter of the auto feeder. For setting, proceed with the following procedure.

1. When the life counter clearing mode is selected, the following will be is displayed.

Seven counters can be selected with the " ▼ " and " ▲ " keys.



2. In the state of 1, select the counter value you want to clear using the " ▼ " key or the " ▲ " key, and then press the START key.
3. "CLEARED" will be displayed, and the counter value will be cleared. After clearing the counter value, another counter value can be cleared using the # or ✕ key, if desired. Press the STOP key to exit from the mode.

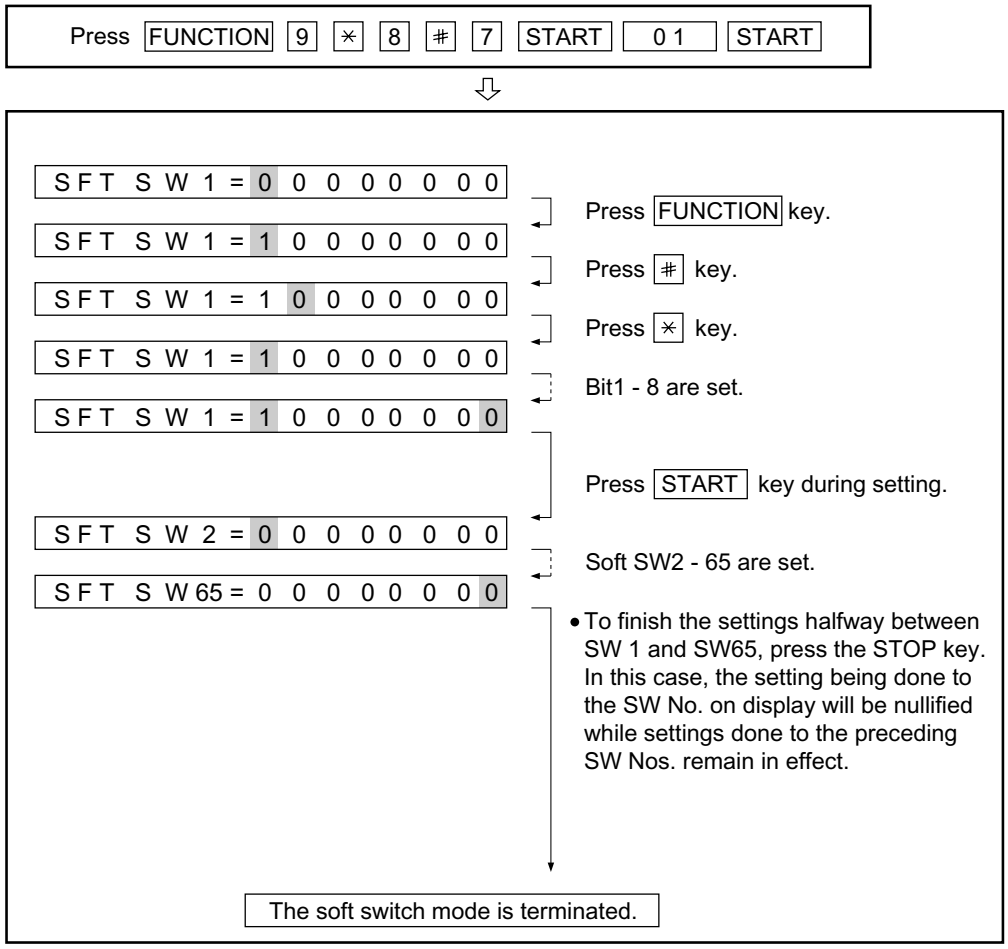
NOTE: The counter shows the operational state of the printer (how many sheets have been printed since start of use? and others). The ordinary memory does not reset the counter. Accordingly, it is necessary to reset the counter or do the clear process in addition to the ordinary memory clear if the content in the memory on the control PWB is broken because of PWB repair, etc. (In the production stage, it is necessary to execute this in the last process.)

2.2.12 Rapid key 12: Main charger adjust

This mode is used to control voltage of main charger.

3. How to make soft switch setting

To enter the soft switch mode, make the following key entries in sequence.


Press FUNCTION 9 * 8 # 7 START 0 1 START
SFT SW 1 = 0 0 0 0 0 0 0 0
SFT SW 1 = 1 0 0 0 0 0 0 0
SFT SW 1 = 1 0 0 0 0 0 0 0
SFT SW 1 = 1 0 0 0 0 0 0 0
SFT SW 1 = 1 0 0 0 0 0 0 0
SFT SW 2 = 0 0 0 0 0 0 0 0
SFT SW 65 = 0 0 0 0 0 0 0 0
Press FUNCTION key.
Press # key.
Press * key.
Bit1 - 8 are set.
Press START key during setting.
Soft SW2 - 65 are set.
• To finish the settings halfway between SW 1 and SW65, press the STOP key. In this case, the setting being done to the SW No. on display will be nullified while settings done to the preceding SW Nos. remain in effect.
The soft switch mode is terminated.

4. Soft switch description

• Soft switch

SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting			Remarks
			1			0			DE	IT	SE	
SW1	1	Recall interval	Binary input 8 4 2 1						0	0	0	OPTION
	2		No.= 1 2 3 4						1	1	1	Set to
	3		0 1 0 1 (5 x 60 sec = 5 min)						0	0	0	01~15
	4								1	1	1	
	5	Recall times	Binary input 8 4 2 1						0	0	0	OPTION
	6		No.= 5 6 7 8						0	0	0	Set to
	7		0 0 1 0 (Twice)						1	1	1	0~10
	8								0	0	0	
SW2	1	Dial mode	Pulse			Tone			0	0	0	OPTION
	2	Reserved							0	0	0	
	3	ECM mode	No			Yes			0	0	0	OPTION
	4	CNG detection in standby mode	No			Yes			0	0	0	OPTION
	5	Polling security	Yes			No			0	0	0	FUNC +3
	6	Automatic cover sheet	No			Yes			1	1	1	OPTION
	7	Reserved							0	0	0	
	8	Anti junk fax function	Yes			No			1	1	1	
SW3	1	Number of rings for auto receive	Binary input 8 4 2 1						0	0	0	OPTION
	2		No.= 1 2 3 4						0	0	0	
	3		0 0 0 1 (1 time)						0	0	0	
	4								1	1	1	
	5	Automatic switching manual to auto receive	Reception after 5 rings			No reception			0	0	0	
	6	Reserved							0	0	0	
	7	CI detect frequency		As PTT	11.5Hz	13.0Hz		20.0Hz				
			No. 7	0	0	1		1	0	0	0	
	8		No. 8	0	1	0		1	0	0	0	
SW4		Communication results printout (transaction report)		Error	Err/Mem	Send only	No print	Always				OPTION
	1		No. 1	0	0	0	1	1	0	0	0	
	2		No. 2	0	0	1	0	1	0	0	0	
	3		No. 3	1	0	0	0	0	1	1	1	
	4	Reserved							0	0	0	
	5	Auto dial mode delay timer of after line connect		4.0 sec	3.6 sec	3.0 sec		1.7 sec				
			No. 5	1	1	0		0	1	1	1	
	6		No. 6	1	0	1		0	1	1	1	
	7	Number of CNG detect (STAND-BY mode)		1 pulse	2 pulses	3 pulses		4 pulses				
			No. 7	0	0	1		0	0	0	0	
	8		No. 8	0	1	0		0	1	1	1	
SW5		Auto dial mode delay timer of before line connect		0 secord	1.5 secord	3.0 secord		4.5 secord				
	1		No. 1	0	0	1		1	0	0	0	
	2		No. 2	0	1	0		1	1	1	1	
	3	Sender's information transmit	No			Yes			0	0	0	
	4	Footer print	Yes			No			0	0	0	
	5	ECM MMR	No			Yes			0	0	0	
	6	Reserved							0	0	0	
	7	Reserved							0	0	0	
	8	CSI transmission	Not transmitted			Transmitted			0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function										Initial setting			Remarks
			1									0	DE	IT	SE	
SW6	1	H2 mode	No									Yes	0	0	0	
	2	Reserved											0	0	0	
	3	Reserved											0	0	0	
	4	Reserved											0	0	0	
		Modem speed (DCS date reception speed)	V.33		V.17				V.29		V.27 ter					
			14400	12000	11400	12000	9600	7200	9600	7200	4800	2400				
	5		0	0	1	1	1	1	0	0	0	0	1	1	1	
	6		1	1	0	0	0	0	0	0	0	0	0	0	0	
	7		0	1	0	1	0	1	0	1	1	0	0	0	0	
	8		0	0	0	0	1	1	1	1	0	0	0	0	0	
SW7	1	Forced 4800bps reception	Yes									No	0	0	0	
	2	Protect from echo	No									Yes	0	0	0	
	3	DIS receive acknowledgement during G3 transmission	Twice									NSF:Once DIS:Twice	0	0	0	
	4	Non modulated carrier for V.29 transmission mode	Yes									No	0	0	0	
	5	EOL detect timer	25 sec									13 sec	0	0	0	
	6	Protocol monitor	Yes									No	0	0	0	
	7	Line monitor	Yes									No	0	0	0	
	8	Length limitation of copy/send/ receive	No limit									Copy/Send:1m Receive:1.5m	0	0	0	
SW8		Digital equalization setting (Reception)			0Km		1.8Km		3.6Km		7.2Km					
	1		No. 1		0		0		1		1		1	1	1	
	2		No. 2		0		1		0		1		1	1	1	
	3	Dial pausing (sec/pause)	4sec									2sec	1	1	1	
	4	Signal transmission level	Binary input 16 8 4 2 1										0	0	0	
	5		No. = 4 5 8 6 7										1	1	1	
	6		0 1 0 0 1 (–9 dBm)										0	0	0	
	7												0	0	0	
	8												1	1	1	
SW9		CED tone signal interval			75ms		500ms		750ms		1000ms					
	1		No.1		0		0		1		1		0	0	0	
	2		No.2		0		1		0		1		0	0	0	
	3	Equalizer freeze control (MODEM)	On									Off	0	0	0	
	4	Equalizer freeze control 7200bps only	No									Yes	0	0	0	
	5	Protocol monitor (Error print)	Printed at communication Error									Not Printed	0	0	0	
	6	Reserved											0	0	0	
	7	Dial tone detection (before auto dial)	No									Yes	1	1	1	
	8	Busy tone detection (after auto dial)	No									Yes	1	1	1	
SW10	1	Reserved											0	0	0	
	2	Reserved											0	0	0	
	3	Reserved											0	0	0	
	4	Reserved											0	0	0	
	5	Reserved											0	0	0	
	6	Reserved											0	0	0	
	7	Reserved											0	0	0	
	8	Reserved											0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting			Remarks
			1		0			DE	IT	SE	
SW11		End buzzer		3sec	1sec	No Beep					
	1		No. 1	0	0	1		0	0	0	
	2		No. 2	0	1	0		0	0	0	
	3	Communication error treatment in RTN sending mode (reception)	No communication error		Communication error			0	0	0	
	4	CNG transmission after auto dialing	No		Yes			0	0	0	
	5	Error criterion	10 ~ 20 %		5 ~ 10 %			0	0	0	
	6	Pulse to tone change by ✻ key	on		off			1	1	1	
	7	CNG transmission in manual transmission	Yes		No			1	1	1	
	8	Reserved						0	0	0	
SW12	1	DTMF signal transmission level (Low)	Binary input		16 8 4 2 1			0	0	0	
	2		No. =		1 2 3 4 5			1	1	1	
	3				0 1 1 1 0(–4.0dBm)			1	1	1	
	4							1	1	1	
	5							0	0	0	
	6	Dial pulse format	N+1 format		N format			0	0	1	
	7	FLASH send time	Long time (250ms)		short time (90ms)			1	0	0	OPTION
	8	Reserved						0	0	0	
SW13	1	DTMF signal transmission level (High)	Binary input		16 8 4 2 1			0	0	0	
	2		No. =		1 2 3 4 5			1	1	1	
	3				0 1 0 1 1 (–5.5dBm)			0	0	0	
	4							1	1	1	
	5							1	1	1	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal	Yes		No			0	0	0	
SW14	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW15		Digital line equalization setting (Transmission)		0km	1.8km	3.6km	7.2km				
	1		No. 1	0	0	1	1	0	0	0	
	2		No. 2	0	1	0	1	0	0	0	
	3	MR coding	No		Yes			0	0	0	
	4	Disconnect the line when DIS is received in RX mode	No		Yes			1	1	1	
	5	Reserved						0	0	0	
	6	Modem speed automatic fallback when RX level is under -40dBm	Yes		No			0	0	0	
		Waiting time after dialing		45sec	55sec	90sec	140sec				
	7		No. 7	0	0	1	1	1	1	1	
	8		No. 8	0	1	0	1	0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting			Remarks
			1		0			DE	IT	SE	
SW16	1 2 3 4 5	CI off detection timer (0-1550ms setting by 50ms step)	Binary input 16 8 4 2 1 No. = 1 2 3 4 5 0 1 1 1 0					0 1 1 1 0	0 1 1 1 0	0 1 1 1 0	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Dial pulse make / break ratio(%)	40/60		33/67			1	1	1	
SW17		Speaker volume (3 stages)		Low	Low	Middle	High				Using Volume key
	1 2		No. 1	0	0	1	1	1 0	1 0	1 0	
			No. 2	0	1	0	1				
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
		Ringer volume (4 stages)		Off	Low	Middle	High				Using Volume key
	5 6		No. 5	0	0	1	1	1 0	1 0	1 0	
			No. 6	0	1	0	1				
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW18	1	Reserved						0	0	0	
	2	Reserved						0	0	0	FUNC + #
	3	Summer time setting	No		Yes			0	0	0	FUNC + 3
	4	Sender's phone number setting	Cannot change		Change allowed			0	0	0	
	5	Polling key	Yes		No			0	0	0	OPTION
	6	Activity report print	Automatic printout		No printout when memory			0	0	0	OPTION
	7	Total communication hours and pages print	No		Yes			0	0	0	
	8	Line density selection	Fine		Standard			0	0	0	OPTION
SW19		Reading slice (Binary)		Factory setting	Dark	Light	Darker (when Dark mode)				
	1 2		No.1	0	0	1	1	0 0	0 0	0 0	
			No.2	0	1	0	1				
		Reading slice (Half tone)		Factory setting	Dark	Light	Darker (when Dark mode)				
	3 4		No.3	0	0	1	1	0 0	0 0	0 0	
			No.4	0	1	0	1				
	5	Reserved						0	0	0	
	6	MTF correction in half tone mode	No		Yes			0	0	0	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW20	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting			Remarks
			1		0			DE	IT	SE	
SW21	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW22	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW23	1	Automatic reduce of receive	Auto		100%			1	1	1	OPTION
	2	Cut off mode (COPY mode)	No		Yes			0	0	0	OPTION
		Paper set size		Letter	Legal	A4					OPTION
	3		No. 3	0	0	1		1	1	1	
	4		No. 4	0	1	0		0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						0	0	0	
	7	A4 paper enable	Enable		Disable			1	1	1	
	8	LEGAL and LETTER paper enable	Enable		Disable			0	0	0	
SW24		DTMF detection time		50ms	80ms	100ms	120ms				
	1		No.1	0	0	1	1	0	0	0	
	2		No.2	0	1	0	1	0	0	0	
	3	Protection remote reception (5 ✱ ✱) detect	Yes		No			0	0	0	
	4	Remote reception with GE telephone	Compatible		Not compatible			1	1	1	
	5	Remote operation code figures by external tel (0 ~ 9)	Binary input		8 4 2 1			0	0	0	OPTION
	6		No.=		5 6 7 8 (Data No.)			1	1	1	
	7		EX		0 1 0 1			0	0	0	
	8		eg.		5 ✱ ✱			1	1	1	
SW25	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Busy tone detect continuation sound detect	No		Yes			0	0	0	
	7	Reserved						0	0	0	
	8	Busy tone detect intermittent sound detect	No		Yes			0	0	0	
SW26	1	Reserved						0	0	0	
	2	Fax switching when A.M. full	Yes		No			0	0	0	OPTION
		Selection time of quiet detection		30sec	40sec	50sec	60sec				
	3		No. 3	0	0	1	1	0	0	0	
	4		No. 4	0	1	0	1	1	1	1	
		Number of CNG detect (AM mode)		1pulse	2pulses	3pulses	4pulses				
	5		No. 5	0	0	1	1	0	0	0	
	6		No. 6	0	1	0	1	1	1	1	
		Busy tone detection pulse number		2pulse	4pulse	6pulse	10pulse				
	7		No. 7	0	0	1	1	0	0	0	
	8		No. 8	0	1	0	1	1	1	1	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting			Remarks
			1	0	DE	IT	SE	
SW27	1	Quiet detect time	Binary input	8 4 2 1	0	0	0	OPTION
	2		No. =	1 2 3 4	1	1	1	
	3			0 1 0 0 (4sec)	0	0	0	
	4				0	0	0	
	5	Quiet detect start timing	Binary input	8 4 2 1	0	0	0	
	6		No. =	5 6 7 8	0	0	0	
	7			0 0 0 0 (0sec)	0	0	0	
	8				0	0	0	
SW28	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW29	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW30	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW31	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting			Remarks
			1	0	DE	IT	SE	
SW32	1	Choice after quiet detect	Wait response for 3 sec	Normal FAX RX	0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Busy tome continuous sound detect time	5 sec	10 sec	1	1	1	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW33	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	1	0	
	7	Reserved			0	1	0	
	8	Reserved			1	0	0	
SW34	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW35	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW36	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW37	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW38	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting			Remarks
			1	0	DE	IT	SE	
SW39	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW40	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW41	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW42	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW43	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW44	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting			Remarks
			1	0	DE	IT	SE	
SW45	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW46	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW47	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW48	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW49	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW50	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting			Remarks
			1	0	DE	IT	SE	
SW51	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW52	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW53	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW54	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW55	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW56	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	
SW57	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting			Remarks
			1			0		DE	IT	SE	
SW58	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						1	1	1	
	7	Reserved						0	0	0	
	8	Reserved						1	1	1	
SW59	1	Reserved						1	1	1	
	2	Reserved						0	0	0	
	3	Reserved						1	1	1	
	4	Reserved						0	0	0	
	5	Reserved						1	1	1	
	6	Reserved						1	1	1	
	7	Reserved						1	1	1	
	8	Reserved						1	1	1	
SW60	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3 4	Fan (back side) drive time		5 minutes	10 minutes	20 minutes	30 minutes	0 1	0 1	0 1	
			No.3	0	0	1	1				
			No.4	0	1	0	1				
	5 6	Right fan drive time		5 minutes	10 minutes	20 minutes	30 minutes	1 1	1 1	1 1	
			No.5	0	0	1	1				
			No.6	0	1	0	1				
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW61	1	Reserved						0	0	0	
	2	Reserved						1	1	1	
	3	Reserved						0	0	0	
	4	Reserved						1	1	1	
	5	Reserved						1	1	1	
	6	Reserved						1	1	1	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW62	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						1	1	1	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						1	1	1	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	
SW63	1	Reserved						1	1	1	
	2	Reserved						0	0	0	
	3	Reserved						1	1	1	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Key Error/Communication error beep	Beep			No Beep		0	0	0	OPTION
	7	End beep (3sec)	Beep			No Beep		0	0	0	OPTION
	8	Key Touch tone	Beep			No Beep		0	0	0	OPTION
SW64	1	Reserved						0	0	0	
	2	Reserved						0	0	0	
	3	Reserved						0	0	0	
	4	Reserved						0	0	0	
	5	Reserved						0	0	0	
	6	Reserved						0	0	0	
	7	Reserved						0	0	0	
	8	Reserved						0	0	0	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting			Remarks
			1	0	SE	IT	SE	
SW65	1	Reserved			0	0	0	
	2	Reserved			0	0	0	
	3	Reserved			0	0	0	
	4	Reserved			0	0	0	
	5	Reserved			0	0	0	
	6	Reserved			0	0	0	
	7	Reserved			0	0	0	
	8	Reserved			0	0	0	

- **Soft switch function description**

SW1 No. 1 ~ No. 4 Recall interval

Choice is made for a recall interval for speed, rapid dial numbers, ten key +START and search + START. Use a binary number to program this. If set to 0 accidentally, 1 will be assumed.

SW1 No. 5 ~ No. 8 Recall times

Choice is made as to how many recall times should be made. Use a binary number to program this.

SW2 No. 1 Dial mode

Switch the type according to the telephone circuit connected to the facsimile.

0: TONE DIAL
1: PULSE DIAL

SW2 No. 2 Reserved

Set to "0".

SW2 No. 3 ECM mode

Used to determine ECM mode function. Refer to the following table.

SW2- No. 3 ECM mode		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
SW6- No. 2 Reserved		0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Compression method	ECM MMR mode	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
	ECM MR mode	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No
	ECM MMH mode	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No
	ECM MH mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
	MR mode	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	MH mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(Depending on remote machine)

SW2 No. 4 CNG detection in standby mode

The CNG signal detection function during stand-by stops.

0: Yes
1: No

SW2 No. 5 Polling security

This switch is employed to enable or disable the polling operation using the ID code verification function, in order to prevent unauthorized polling operation.

SW2 No. 6 Automatic cover sheet

When "0" (=YES) is selected, the cover sheet is automatically sent after transmission of the original to notify the receiver of the number of original sheets transmitted.

SW2 No. 7 Reserved

Set to "0".

SW2 No. 8 Anti junk fax function

This function is used to receive data from a specific remote machine (station registered in entry mode). It is the function that refused a reception in the case that TSI of remote machine matched with fax number of the station registered.

0: No
1: Yes

SW3 No. 1 ~ No.4 Number of rings for auto receive

When the machine is set in the auto receive mode, the number of rings before answering can be selected. It may be set from one to nine rings using a binary number. If the soft switch was set to "1", a direct connection is made to the facsimile. If it was set to "0" accidentally, receive ring is set to "1". If it was above 9, receive rings are set to 9.

SW3 No. 5 Automation switching manual to auto receive

This soft switch is used to select whether the machine should switch to the auto receive mode after 5 rings in the manual receive mode or remain in the same way as SW03 No. 1,No. 2,No. 3 and No. 4 "0","1","0","0" (5 rings).

SW3 No. 6 Reserved

Set to "0".

SW3 No. 7, No. 8 CI detect frequency

Detection frequency of ring signal for auto reception is set.

When set to No.7=0,No.8=0, frequency is set to PTT recommendation.

When set to No.7=0,No.8=1, frequency is set to 11.5Hz or more.

When set to No.7=1,No.8=0, frequency is set to 13.0Hz or more.

When set to No.7=1,No.8=1, frequency is set to 20.0Hz or more.

SW4 No. 1 ~ No. 3 Communication results printout

(transaction report)

Every communication, the result can be output. As usual, it is set to print the timer sending communication error alone. If No. 1 : 1 No. 2 : 1 No. 3 : 0 are set, printing is always on (printed ever if it is normally ended).

000 : Error, timer and memory sending/receiving
010 : Sending
110 : Continuous printing
100 : Not printed
001 : Communication error

SW4 No. 4 Reserved

Set to "0".

SW4 No. 5, No. 6 Auto dial mode delay timer of after line connect

Delay time between the line connection and dial data output under the auto-dial mode.

SW4 No. 7, No. 8 Number of CNG detect (STAND-BY mode)

Used for detection of CNG in 1 to 4 pulses.

SW5 No. 1, No. 2 Auto dial mode delay timer of before line connect

Delay time between the dial key input and line connection under the auto dial mode.

No.1	No.2	
0	0	0sec
0	1	1.5sec
1	0	3.0sec
1	1	4.5sec

SW5 No. 3 Sender's information transmit

When it is set at "0", sender's name, sending page number and so on are automatically printed in the recording paper on the receiving side during transmission. Thus, the sender can be known on the receiving side.

0: Applied
1: Not applied

SW5 No. 4 Footer print

When set to "1", the date of reception, the sender machine No., and the page No. are automatically recorded at the end of reception.

SW5 No. 5 ECM MMR

See SW 2 No. 3.

SW5 No. 6, No. 7 Reserved

Set to "0".

SW5 No. 8 CSI transmission

CSI signal contains the sender's phone number registered in the machine. If this switch is set to "1", no sender's name will be printed at the receiving side.

SW6 No. 1 H2 mode

Used to determine reception of H2 mode (15 sec transmission mode).

When set to OFF, H2 mode reception is inhibited even though the transmitting machine has H2 mode function.

SW6 No. 2 ~ No. 4 Reserved

Set to "0".

SW6 No. 5 ~ No. 8 Modem speed (DCS data reception speed)

Used to determine the initial modem speed. The default is 14400BPS(V.17). It may be necessary to program it to a slower speed when frequent line fallback is encountered, in order to save the time required for the fallback procedure.

SW7 No. 1 Forced 4800bps reception

When line conditions warrant that receptions take place at 4800 BPS repeatedly.

It may improve the success of reception by setting at 4800 BPS.

This improves the receiving document quality and reduces handshake time due to fallback during training.

SW7 No. 2 Protect from echo

Used to protect from echo in reception.

SW7 No. 3 DIS receive acknowledgement during G3 transmission

Used to make a choice of whether reception of NSF (DIS) is acknowledged after receiving two NSFs (DISs) or receiving one NSF (two DISs).

It may be useful for overseas communication to avoid an echo suppression problem, if set to "1".

SW7 No. 4 Non modulated carrier for V.29 transmission mode

Though transmission of a non-modulated carrier is not required for transmission by the V29 modem according to the CCITT Recommendation, it may be permitted to send a non-modulated carrier before the image signal to avoid an echo suppression problem.

It may be useful for overseas communication to avoid an echo suppression problem, if set to "1".

SW7 No. 5 EOL detect timer

25 seconds or 13 seconds are selected for the detection timer of EOL (end of line). This is effective against communication trouble on a specific type of long EOL.

0:13 seconds
1:25 seconds

SW7 No. 6 Protocol monitor

Normally set to "0". If set to "1", communication can be checked, in case of trouble, without using a G3 tester or other tools.

When communication FSK data transmission or reception is made, the data is taken into the buffer. When communication is finished, the data is analysed and printed out. When data is received with the line monitor (SW07 No.7) set to "1" the reception level is also printed out.

SW7 No. 7 Line monitor

Normally set to "0". If set to "1", the transmission speed and the reception level are displayed on the LCD. Used for line tests.

SW7 No. 8 Length limitation of copy/send/receive

Used to set the maximum page length.

To avoid possible paper jam, the page length is normally limited to 1m for copy or transmit, and 1.5 meters for receive.

It is possible to set it to "No limit" to transmit/receive a long document, such as a computer print form, etc. (In this case, the receiver/transmitter must also be set to no limit.)

SW8 No. 1, No. 2 Digital equalization setting (Reception)

The specific line equalizer is inserted.

No. 1	No. 2	
0	0	The line equalizer built in the modem is turned off
0	1	Line equalizer corresponding to 1.8 km
1	0	Line equalizer corresponding to 3.6 km
0	1	Line equalizer corresponding to 7.2 km

SW8 No. 3 Dial pausing (sec/pause)

Pauses can be inserted between telephone numbers of direct dial connection. Selection of 4 sec or 2 sec pause is available.

SW8 No. 4 ~ No. 8 Signal transmission level

Used to control the signal transmission level in the range of –0dB to –31dB.

SW9 No. 1, No. 2 CED tone signal interval

For international communication, the 2100Hz CED tone may act as an echo suppresser switch, causing a communication problem. Though this soft switch is normally set to "00", it should be change the time between CED tone and DIS signal from 75ms to 1000ms to eliminate the communication problem caused by echo.

SW9 No. 3 Equalizer freeze control (MODEM)

This switch is used to perform reception operation by fixing the equalizer control of modem for the line which is always in an unfavorable state and picture cannot be received. Usually, the control is executed according to the state of line where the equalizer setting is changed always.

SW9 No. 4 Equalizer freeze control 7200bps only

Setting which specifies SW9 No.3 control only in condition of 7200bps modem speed.

SW9 No. 5 Protocol monitor (Error Print)

If set to "1", protocol is printed at communication error.

SW9 No. 6 Reserved

Set to "0".

SW9 No. 7 Dial tone detection (before auto dial)

Used to set Yes/No of dial tone detection in auto dialing.

SW9 No. 8 Busy tone detection (after auto dial)

This is used to set busy tone detection in auto dialing.

SW10 No. 1 ~ No. 8 Reserved

Set to "0".

SW11 No. 1, No. 2 End buzzer

The sounding length of the buzzer for normal end of operation set.

SW11 No. 3 Communication error treatment in RTN setting mode (reception)

Used to determine communication error treatment when RTN is sent by occurrence of a received image error in G3 reception. When it is set to "1", communication error is judged as no error.

SW11 No. 4 CNG transmission after auto dialing

When set to "0", this model allows CNG transmission by pressing the Start key in the key pad dialing mode. When set to "1", CNG transmission in the key pad dialing mode cannot be performed. In either case. CNG transmission can be performed in the auto dial mode.

SW11 No. 5 Error criterion

Used to select error criterion for sending back RTN when receiving image data.

SW11 No. 6 Pulse to tone change by ✻ key

When setting to 1, the mode is changed by pressing the ✻ key from the pulse dial mode to the tone dial mode.

SW11 No. 7 CNG transmission in manual transmission

CNG signal sending ON/OFF in case of manual transmission is set.

SW11 No. 8 Reserved

Set to "0".

SW12 No. 1 ~ No.5 DTMF signal transmission level (Low)

The transmission level of DTMF signal is adjusted. (lower frequency)

00000 : 0 dBm
↓
11111 : -15.5 dBm

SW12 No. 6 Dial pulse format

If this switch is set to "1", pulse dial number dials +1

(Example)

0: dial 1
9: dial 0 (10 pulses)

SW12 No. 7 Flash send time

Used to select length of Flash.

No. 7= 0: 90msec (Short time)
No. 7= 1: 250msec (Long time)

SW12 No. 8 Reserved

Set to "0".

SW13 No. 1 ~ No.5 DTMF signal transmission level (High)

The transmission level of DTMF signal is adjusted. (higher frequency)

00000 : 0 dBm
↓
11111 : -15.5 dBm

SW13 No. 6, No. 7 Reserved

Set to "0".

SW13 No. 8 Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal

When dialing results in failure since the busy tone cannot be detected, recalling is fixed to one time.

Supplementary explanation

If time-out termination is made when dialing, only single recall is possible even if the setting time of recalls (SW01 No. 5 ~ No. 8) has been set to some times.

SW14 No. 1 ~ No. 8 Reserved

Set to "0".

SW15 No. 1, No. 2 Digital line equalization setting (Transmission)

Line equalization when transmitter is to be set according to the line characteristics. Setting should be made according to distance between the telephone and the telephone company central switching station.

SW15 No. 3 MR coding

MR coding is enable.

SW15 No. 4 Disconnect the line when DIS is received in RX mode

Bit1=0: When DIS signal is received during RX mode, the line is discon-nected immediately.

Bit1=1: When DIS signal is received during RX mode, the line is disconnected on the next tone.

SW15 No. 5 Reserved

Set to "0".

SW15 No. 6 Modem speed automatic fallback when RX level is under -40dBm

When set to "1", if fax signal level is under -40dBm during reception, machine selects the slower modem speed automatically.

It is effective when noises occur on the received document due to the long distance communications.

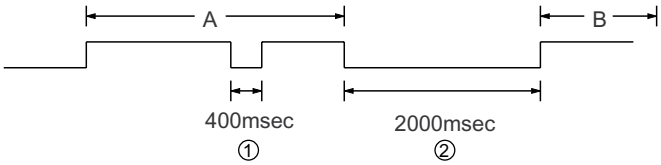
SW15 No. 7, No. 8 Waiting time after dialing

This is time waiting for the opponent's signals after dialing.

SW16 No. 1 ~ No. 5 CI off detection timer (0 - 1550ms setting by 50ms step)

Set the minimum time period of CI signal interruption which affords to be judged as a CI OFF section with 50ms steps.

(Example)



SW16 No. 6, No. 7 Reserved

Set to "0".

SW16 No. 8 Dial pulse make / break ratio (%)

When using the 33% make ratio pulse dial, set to "0".

When using the 40% make ratio pulse dial, set to "1".

SW17 No. 1, No. 2 Speaker volume (3 stages)

Used to adjust sound volume from a speaker.

SW17 No. 3, No. 4 Reserved

Set to "0".

SW17 No. 5, No. 6 Ringer volume (4 stages)

Used to adjust ringing volume.

SW17 No. 7, No. 8 Reserved

Set to "0".

SW18 No. 1, No. 2 Reserved

Set to "0".

SW18 No. 3 Summer time setting

The day light saving function ON/OFF is set.

SW18 No. 4 Sender's phone number setting

Whether the registered sender's phone number can be changed or not is selected. If it is set at "1", the phone number of the sender can not be registered or changed. Set "1" in order to prevent careless change of the sender's phone number.

0: Change allowed
1: Cannot change

SW18 No. 5 Polling key

If this switch is set to "1", the last of Rapid key works as polling key.

SW18 No. 6 Activity report print

Whether the communication record table is automatically printed or not, it is selected if the number of communication data is excessive. Regardless of the setting of this selection, communication record table can be printed at all times by operating the keys.

FUNCTION + "2" + "#" + "START"

When the communication record table is printed, the memorized content of the data sent and received up to now will be all cleared (erased). If No (non-printing) is set, the oldest data will be erased when the number of memorized items is excessive.

0: No (first data lost when memory is full)
1: YES (when memory is full)

SW18 No. 7 Total communication hours and pages print

Whether the total time of communication and total number of sheets are recorded in the communication record table or not is selected.

0: Recorded.
1: Not recorded.

SW18 No. 8 Line density selection

Used to set the transmission mode which is automatically selected when the Resolution Key is not pressed. In the copy mode, however, the fine mode is automatically selected unless the Resolution key is manually set to another mode.

SW19 No. 1, No. 2 Reading slice (Binary)

Used to determine the set value of reading density in standard/fine mode. The standard setting is "00". (Factory setting is "00")

SW19 No. 3, No. 4 Reading slice (Half tone)

Used to determine the set value of reading density in half tone mode. The standard setting is "00". (Factory setting is "00")

SW19 No. 5 Reserved

Set to "0".

SW19 No. 6 MTF correction in half tone mode

In the half tone mode, image area is separated from character area and processed separately to eliminate unclear character transmission. This switch is used to change the criteria of judgment of separation. When "Strong" (= 1) is selected, more area is judged as character area, providing clearer characters.

On the contrary, however, edges of image area may be emphasized.

It is advisable to restrict the use of this function only when clear characters must be transmitted, and to use the function of "Weak" (= 0) for general cases.

SW19 No. 7, No. 8 Reserved

Set to "0".

SW20 No. 1 ~ No. 8 Reserved

Set to "0".

SW21 No. 1 ~ No. 8 Reserved

Set to "0".

SW22 No. 1 ~ No. 8 Reserved

Set to "0".

SW23 No. 1 Automatic reduce of receive

If set to "1", it is reduced automatically.

SW23 No. 2 Cut off mode (COPY mode)

When in copy, if the scanned data is out of the range of recording, the operator has one of the choices below using the switch.

1: Continue: Data is printed onto the next page with the last 20mm also printed at the beginning of the next page
0: Cut off. Data scanned out of the limit is cut off (a page is printed.)

SW23 No. 3, No. 4 Paper set size

At present a size of the record paper.

00: LETTER
01: LEGAL
10: A4

SW23 No. 5, No. 6 Reserved

Set to "0".

SW23 No. 7 A4 paper enable

The use of recording paper of A4 is enable.

SW23 No. 8 LEGAL and LETTER paper enable

The use of recording paper of LEGAL and LETTER is enabled.

SW24 No. 1, No. 2 DTMF detection time

Used to set detect time of DTMF (Dual Tone Multi Frequency) used in remote reception (5 ✻ ✻). The longer the detection time is, the error detection is caused by noises.

SW24 No.3 Protection remote reception (✻ ✻) detect

Used to set the function of remote reception (5 ✻ ✻). When set to "1", the remote reception function is disabled.

SW24 No. 4 Remote reception with GE telephone

(Corresponding to TEL mode by GE) P. B. X.

"1": Compatible with TEL mode by GE

"0": Not compatible

When sending (5 ✻ ✻) for remote reception with a GE manufactured telephone remote reception may not take place because of special specifications in their DTMF.

To overcome this, a soft SW is provided to change the modem setting to allow for remote reception.

If this soft SW is set to "1", other telephone sets may be adversely affected.

SW24 No. 5 ~ No. 8 Remote operation code figures by external tel (0 ~ 9)

Remote operation codes can be changed from 0 through 9. If set to greater than 9, it defaults to 9. The "5 ✻ ✻" is not changed.

SW25 No. 1 ~ No. 5 Reserved

Set to "0".

SW25 No. 6 Busy tone detect continuation sound detect

Used to select detection of the continuous sound of certain frequency.

SW25 No. 7 Reserved

Set to "0".

SW25 No. 8 Busy tone detect intermittent sound detect

Used to select detection of the intermittent sound of certain frequency.

SW26 No. 1 Reserved

Set to "0".

SW26 No. 2 Fax switching when A.M. full

If the answering machine's memory (tape) is full and there is no response, the machine automatically switches to Fax reception

SW26 No. 3, No. 4 Selection time of quiet detection

The switch which sets the time from the start of detection function to the end of the function.

SW26 No. 5, No. 6 Number of CNG detect (AM mode)

Used for detection of CNG in 1 to 4 pulses.

SW26 No. 7, No. 8 Busy tone detect pulse number

Used to set detection of busy tone intermittent sounds.

SW27 No. 1 ~ No. 4 Quiet detect time

When an answering machine is connected, if a no sound status is detected for a certain period of time, the machine judges it as s transmission from a facsimile machine and automatically switches to the FAX mode.

SW27 No. 5 ~ No. 8 Quiet detect start timing

Inserts a pause before commencing quiet detection.

0000: 0 seconds
1111 : 15 seconds

SW28 No. 1 ~ No. 8 Reserved

Set to "0".

SW29 No. 1 ~ No. 8 Reserved

Set to "0".

SW30 No. 1 ~ No. 8 Reserved

Set to "0".

SW31 No. 1 ~ No. 8 Reserved

Set to "0".

SW32 No. 1 Choice after quiet detect

"0": The reception begins when no sound is detected in A.M. mode.
"1": The DIS signal is transmitted only once when no sound is detected in A.M. mode.

SW32 No. 2, No. 3 Reserved

Set to "0".

SW32 No. 4 Busy tone continuous sound detect time

Set detecting time busy tone continuous sound for 5 or 10 seconds.

SW32 No. 5 ~ No. 8 Reserved

Set to "0".

SW33 No. 1 ~ No. 5 Reserved

Set to "0".

SW33 No. 6, No. 7 Reserved

Set to "0". (DE/SE)

Set to "1". (IT)

SW33 No. 8 Reserved

Set to "0". (IT/SE)

Set to "1". (DE)

SW34 No. 1 ~ No. 8 Reserved

Set to "0".

SW35 No. 1 ~ No. 8 Reserved

Set to "0".

SW36 No. 1 ~ No. 8 Reserved

Set to "0".

SW37 No. 1 ~ No. 8 Reserved

Set to "0".

SW38 No. 1 ~ No. 8 Reserved

Set to "0".

SW39 No. 1 ~ No. 8 Reserved

Set to "0".

SW40 No. 1 ~ No. 8 Reserved

Set to "0".

SW41 No. 1 ~ No. 8 Reserved

Set to "0".

SW42 No. 1 ~ No. 8 Reserved

Set to "0".

SW43 No. 1 ~ No. 8 Reserved

Set to "0".

SW44 No. 1 ~ No. 8 Reserved

Set to "0".

SW45 No. 1 ~ No. 8 Reserved

Set to "0".

SW46 No. 1 ~ No. 8 Reserved

Set to "0".

SW47 No. 1 ~ No. 8 Reserved

Set to "0".

SW48 No. 1 ~ No. 8 Reserved

Set to "0".

SW49 No. 1 ~ No. 8 Reserved

Set to "0".

SW50 No. 1 ~ No. 8 Reserved

Set to "0".

SW51 No. 1 ~ No. 8 Reserved

Set to "0".

SW52 No. 1 ~ No. 8 Reserved

Set to "0".

SW53 No. 1 ~ No. 8 Reserved

Set to "0".

SW54 No. 1 ~ No. 8 Reserved

Set to "0".

SW55 No. 1 ~ No. 8 Reserved

Set to "0".

SW56 No. 1 ~ No. 8 Reserved

Set to "0".

SW57 No. 1 ~ No. 8 Reserved

Set to "0".

SW58 No. 1 ~ No. 5 Reserved

Set to "0".

SW58 No. 6 Reserved

Set to "1".

SW58 No. 7 Reserved

Set to "0".

SW58 No. 8 Reserved

Set to "1".

SW59 No. 1 Reserved

Set to "1".

SW59 No. 2 Reserved

Set to "0".

SW59 No. 3 Reserved

Set to "1".

SW59 No. 4 Reserved

Set to "0".

SW59 No. 5 ~ No. 8 Reserved

Set to "1".

SW60 No. 1, No. 2 Reserved

Set to "0".

SW60 No. 3, No. 4 Fan (back side) drive time

It is used to set the rotating time of back side fan.

SW60 No. 5, No. 6 Right Fan drive time

It is used to set the rotating time of Right fan.

SW60 No. 7, No. 8 Reserved

Set to "0".

SW61 No. 1 Reserved

Set to "0".

SW61 No. 2 Reserved

Set to "1".

SW61 No. 3 Reserved

Set to "0".

SW61 No. 4 ~ No. 6 Reserved

Set to "1".

SW61 No. 7, No. 8 Reserved

Set to "0".

SW62 No. 1, No. 2 Reserved

Set to "0".

SW62 No. 3 Reserved

Set to "1".

SW62 No. 4, No. 5 Reserved

Set to "0".

SW62 No. 6 Reserved

Set to "1".

SW62 No. 7, No. 8 Reserved

Set to "0".

SW63 No. 1 Reserved

Set to "1".

SW63 No. 2 Reserved

Set to "0".

SW63 No. 3 Reserved

Set to "1".

SW63 No. 4, No. 5 Reserved

Set to "0".

SW63 No. 6 Key Error/Communication error beep

When set to "1", the machine will not sound the alert beep when the communication error/printer error/key error are occurred.

SW63 No. 7 End beep (3sec)

When set to "1", the machine will not sound the end-beep(3sec)when the communication or copy etc. has finished normally.

SW63 No. 8 Key touch tone

When set to "1", the machine will not sound the key touch tone (except for key error tone).

SW64 No. 1 ~ No. 8 Reserved

Set to "0".

SW65 No. 1 ~ No. 8 Reserved

Set to "0".

[3] Troubleshooting

1. Fax troubleshooting

Refer to the following actions to troubleshoot any of the problems mentioned in 1-4.

1) A communication error occurs.

2) Image distortion produced.

3) Unable to do overseas communication.

4) Communication speed slow due to FALLBACK.

- Increase the transmission level SOFT SWITCH 8-4, 5, 6, 7, 8
  May be used in case 1) 2) 3).
- Decrease the transmission level SOFT SWITCH 8-4, 5, 6, 7, 8
  May be used in case 3).
- Apply line equalization SOFT SWITCH 8-1, 2
  May be used in all cases.
- Slow down the transmission speed SOFT SWITCH 6-5, 6, 7, 8
  May be used in case 2) 3).
- Replace the LIU PWB.
  May be used in all cases.
- Replace the control PWB.
  May be used in all cases.

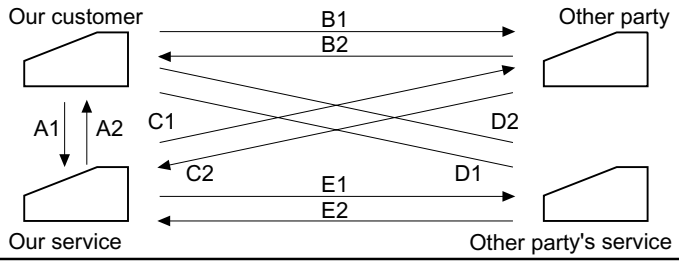
* If transmission problems still exist on the machine, use the following format and check the related matters.

TO: ATT: Ref.No. :

CC: ATT: Date :

FM: Dept :

Sign :

***** Facsimile communication problem *****				Ref.No.:
From: Mr.	Fax Tel No.:			Date:
Our customer	Name			Tel No.
	Address			Fax No.
	Contact person			Model name
Other party	Name			Tel No.
	Address			Fax No.
	Contact person			Model name
Problem mode	Line: Domestic / International	Mode: G3		Phase: A. B. C. D.
	Reception / Transmission	Automatic reception / Manual reception		
		Automatic dialing / Manual dialing / Others		
Frequency:		%	ROM version:	
Confirmation item				Please mark problem with an X No problem is: 0

A1	A2	B1	B2	C1	C2	D1	D2	E1	E2

Transmission level setting is ( ) dB at our customer

Transmission level ( ) dBm
Reception level ( ) dBm
By level meter at B1 and B2

Comment	
Countermeasure	

**** Please attach the G3 data and activity report on problem. ****

[4] Error code table

1. Communication error code table

G3 Transmission

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSF, DIS	Cannot recognize DCS signal by echo etc. Cannot recognize NSS signal (FIF code etc)
2	CFR	Disconnects line during reception (carrier missing etc)
3	FTT	Disconnects line by fallback
4	MCF	Disconnects line during reception of multi page Cannot recognize NSS, DCS signal in the case of mode change
5	PIP or PIN	The line is hung up without replying to telephone request from the receiving party.
6	RTN or RTP	Cannot recognize NSS, DCS signal after transmit RTN or RTP signal.
7	No signal or DCN	No response on receiver side or DCN signal received* (transmitter side)
8	-	Owing to error in some page the error could not be corrected although the specified number of error retransmission was attempted.
11	-	Error occurred after or while reception by the remote (receiving) machine was revealed to be impossible.
12	-	Error occurred just after fallback.
13	-	Error occurred after a response to retransmission end command was received.

G3 Reception

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSS, DCS	Cannot recognize CFR or FTT signal Disconnects line during transmission (line error)
2	NSC, DTC	Cannot recognize NSS signal (FIF code etc)
3	EOP	Cannot recognize MCF, PIP, PIN, RTN, RTP signal
4	EOM	Cannot recognize MCF, PIP, PIN, RTN, RTP signal in the case of mode change
5	MPS	The line is hung up without replying to communication request.
6	PR1-Q	Cannot recognize PIP, PIN signal in the case of TALK request
7	No signal or DCN	No response in transmitter (cannot recognize DIS signal) or DCN signal received* (receiver side)
8	-	Error occurred upon completion of reception of all pages.
9	-	Error occurred when mode was changed or Transmission/Reception switching was performed.
10	-	Error occurred during partial page or physical page reception.
11	-	Error occurred after or during inquiry from the remote (transmitting) machine as to whether reception is possible or not.
12	-	Error occurred during or just after fallback.
13	-	Error occurred after the retransmission end command was received.

CHAPTER 3. MECHANICAL DESCRIPTION

[1] Mechanical description

1. Facsimile block

1.1. Document feed block and diagram

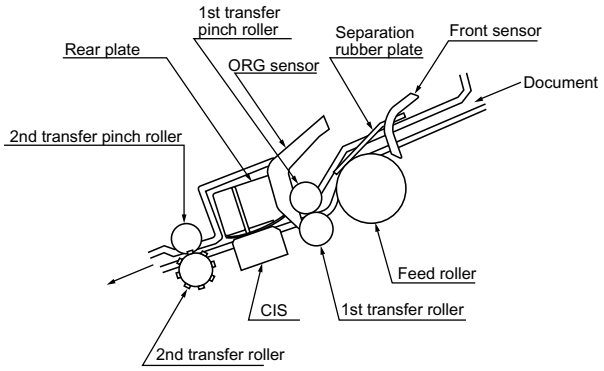


Fig. 1

2. Document feed operation

1) As shown in Fig.1, the document set in the hopper (the front sensor is on) is fed with the let out roller and paper feed roller which rotate together with the pulse motor.
2) When a specified number of pulses are received from the document sensor after the document lead edge is sensed, scanning will be started.
3) When a specified number of pulses are received from the document sensor after the document rear edge is sensed, scanning will be ended to discharge the document to the tray.
4) If the front sensor is on (the document is set up in the hopper), the next document is supplied and fed nearly when the last document is completely read and discharged. If the front sensor is off (no document is set up in the hopper), the drive will be stopped when the document is discharged to the tray.

3. Hopper mechanism

3.1. General view

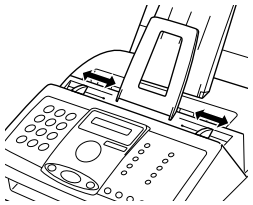


Fig. 2

The hopper is used to align documents with the document guides adjusted to the paper width.

NOTE: Adjust the document guides before and after inserting the document.

3.2. Automatic document feed

1) The structure with secure paper feed of the transfer roller and secure separation of the separation rubber plate system is employed. The transfer roller is circular as to be rotated only when the paper feed roller is driven with the 2-step paper feed clutch mechanism. Moreover, the separation securely done by running the paper feed and transfer rollers more slowly than the feed roller.
2) Document separation system:

   Friction + speed reduction ratio + roller backlash separation system

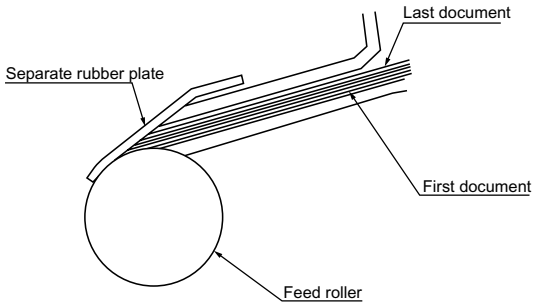


Fig. 3

3.3. Loading the documents

1) Make sure that the documents are of suitable size and thickness, and free from creases, folds, curls, wet glue, wet ink, clips, staples and pins.
2) Place documents face down in the hopper.
   - Adjust the document guides to the document width.
   - Align the top edge of documents and gently place them into the hopper. The first page under the stack will be taken up by the feed roller to get ready for transmission.

NOTE: 1) Curled edge of documents, if any, must be straighten out.
2) Do not load the documents of different sizes and/or thicknesses together.

3.4. Documents applicable for automatic feed

		Product specifications	
	Indication	Lower Limit	Upper Limit
Weight indication	Metric system indication	52g/m^2	80g/m^2
Thickness indication	Metric system indication	0.06mm	0.1mm
Document size	Document size Range	Minimum (148mm x 128mm) A4 (210mm x 297mm)	
		Letter (216mm x 279mm)	
		Legal (216mm x 356mm)	
Number of ADF sheets	Document size Weight	Minimum ~ Letter/A4 size 20sheets	
		Legal 1 sheet	
		More than 90 kg Below 135kg 1 sheet	
Paper quality	Kind	Paper of fine quality/bond paper/ Kent paper	

NOTE: Double-side coated documents and documents on facsimile recording paper should be inserted manually.

Documents corresponding to a paper weight heavier than 90kg and lighter than 135kg are acceptable for manual feed.

Documents heavier than 135kg in terms of the paper weight must be duplicated on a copier to make it operative in the facsimile.

4. Paper Path

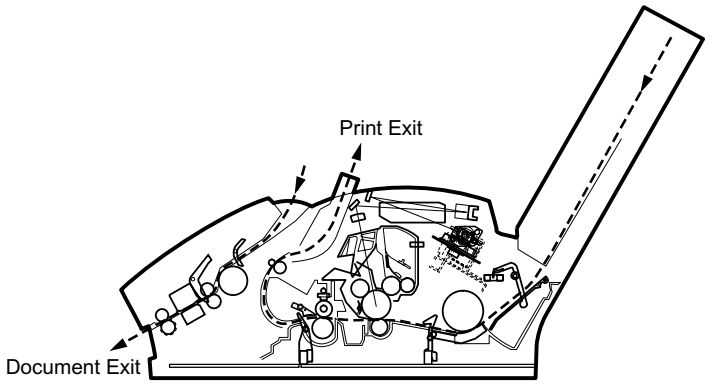


Fig. 4

5. Components Layout

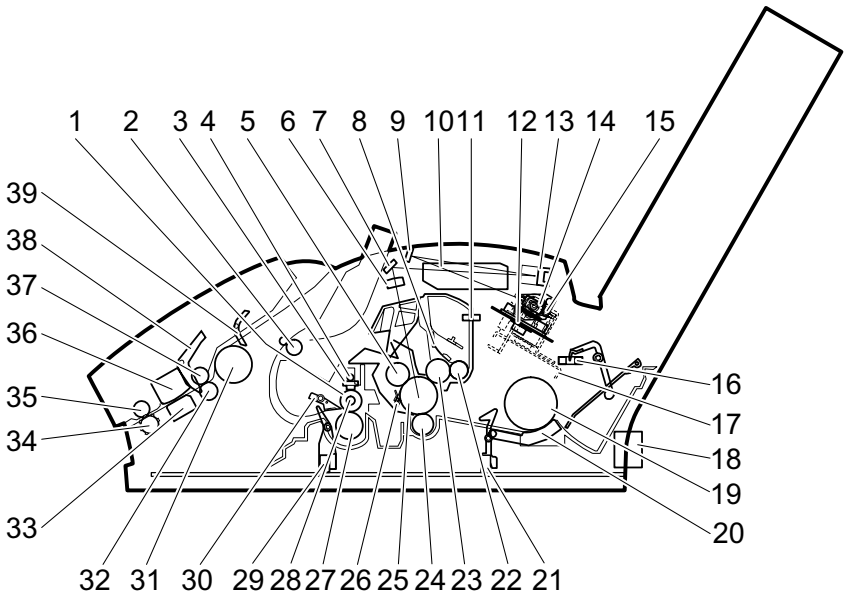


Fig. 5

No.	PARTS NAME	No.	PARTS NAME
1	Fusing temperature sensor (thermistor)	21	PIN sensor
2	Face-down paper exit roller	22	Toner supply roller
3	Temperature fuse(187℃)	23	Developing roller
4	Temperature fuse(132℃)	24	Transfer charger roller
5	Main charger roller	25	Photoconductor drum
6	Cylinder lens	26	Discharge brush
7	Third mirror	27	Pressure roller
8	Developing doctor	28	Heat roller
9	First mirror	29	Paper exit detector
10	Laser start position sensor	30	Separation pawl
11	Toner sensor	31	Feed roller
12	Scanner motor	32	1st. transfer roller
13	Second mirror	33	CIS
14	Scanner mirror	34	2nd. transfer roller
15	Laser unit	35	2nd. transfer pinch roller
16	Paper empty detector	36	Rear plate
17	Paper feed clutch solenoid	37	1st. transfer pinch roller
18	Fan motor	38	Original sensor
19	Paper feed roller	39	Front sensor
20	Paper separation sheet		

6. Switch, Sensor Layout

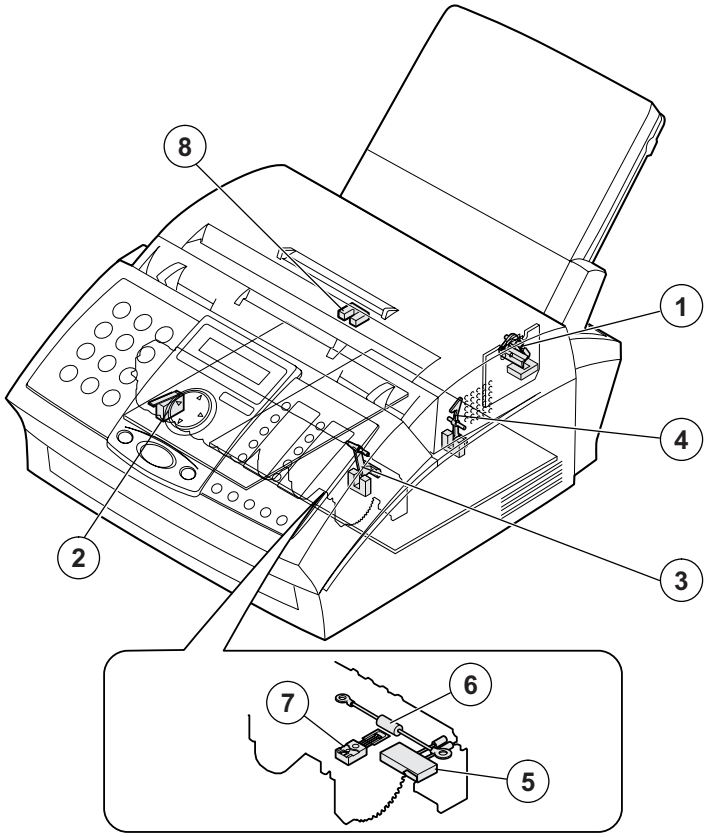


Fig. 6

No.	PARTS NAME	TYPE	DESCRIPTION
①	PE sensor (Paper empty sensor)	Photo transistor (Transmission type)	Detects presence of paper on the multi-purpose paper tray.
②	Front cover open detector	Microswitch	24V line safety switch. When the front cover is opened, this switch is turned off to cut the 12V line except for "ERROR" and "ON LINE" LED. By this, the main motor, the heater lamp, and the high voltage power source is turned off.
③	POUT sensor (Paper out sensor)	Photo transistor (Transmission type)	Detects paper out, and paper jams.
④	PIN (Paper in) sensor	Photo transistor (Transmission type) (Common with the 2nd PIN sensor)	When this switch is turned on, paper transport and image transfer from the drum are started. This is also used for detection of paper jam.
⑤	Temperature fuse 187℃	Termal fuse	When the heat roller temperature rises abnormally, this fuse cuts off the power relay power line(12V line)
⑥	Temperature fuse 132℃	Termal fuse	When the heat roller temperature rises abnormally, this fuse cuts off the heater lamp power line.
⑦	Thermistor	Thermistor	This thermistor detects the temperature on the heat roller.
⑧	Toner sensor	Photo coupler	This photo coupler detects toner quantity.

7. PRINT PROCESS

7.1. Image forming process

Normal paper is used as print paper. A laser beam is used to expose on the OPC surface to form latent electrostatic images, which are developed into visible images (toner images) and are transferred on paper. The basic operation is composed of the five processes: charging, exposure, development, transfer, and cleaning.

7.2. System diagram

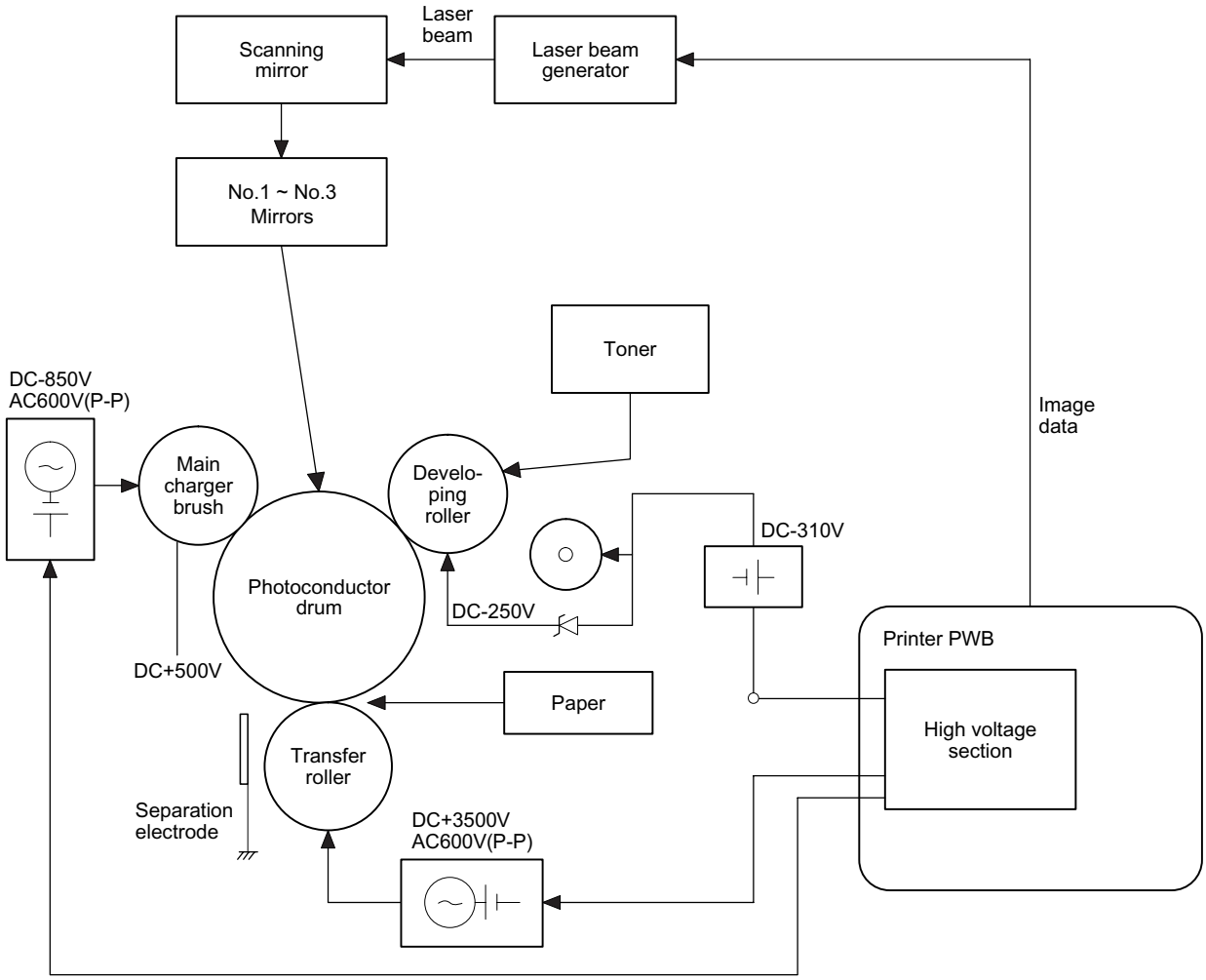


Fig. 7

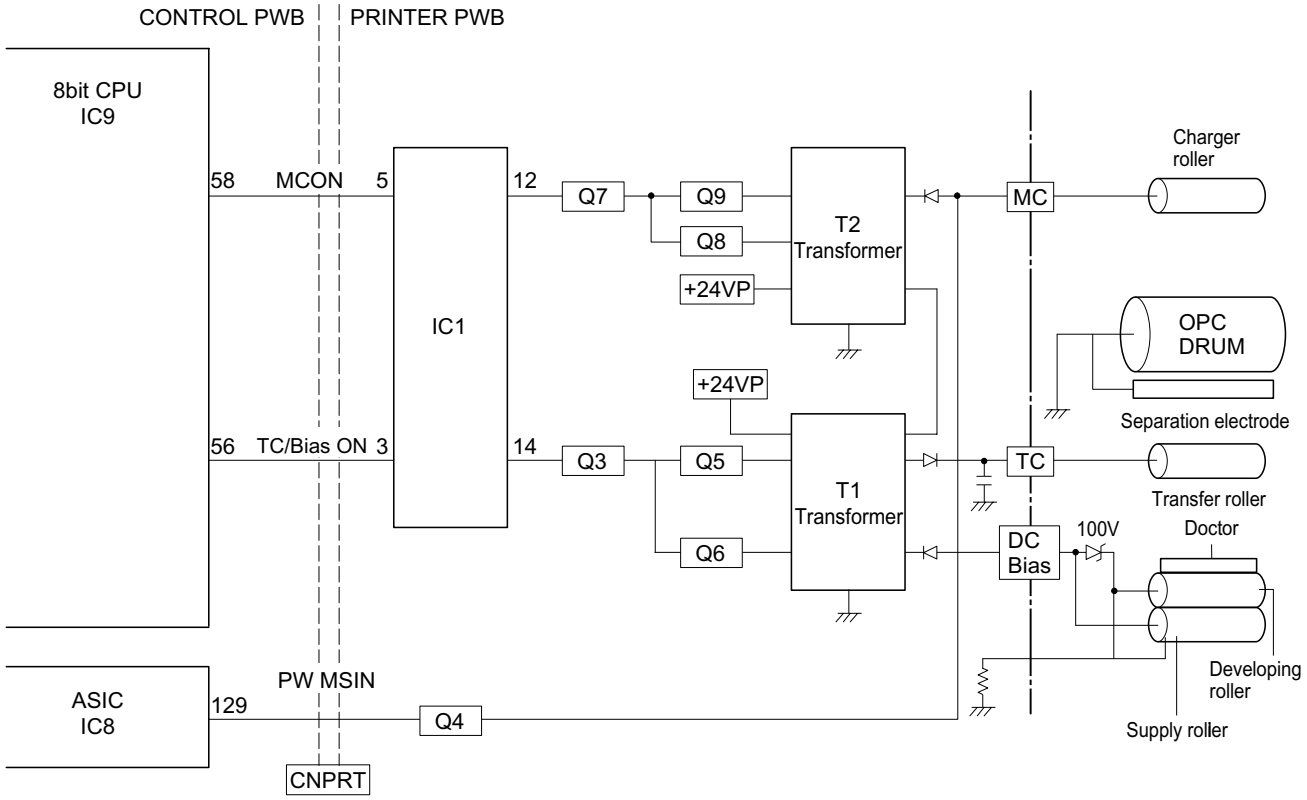


Fig. 8

7.3. Image forming process diagram

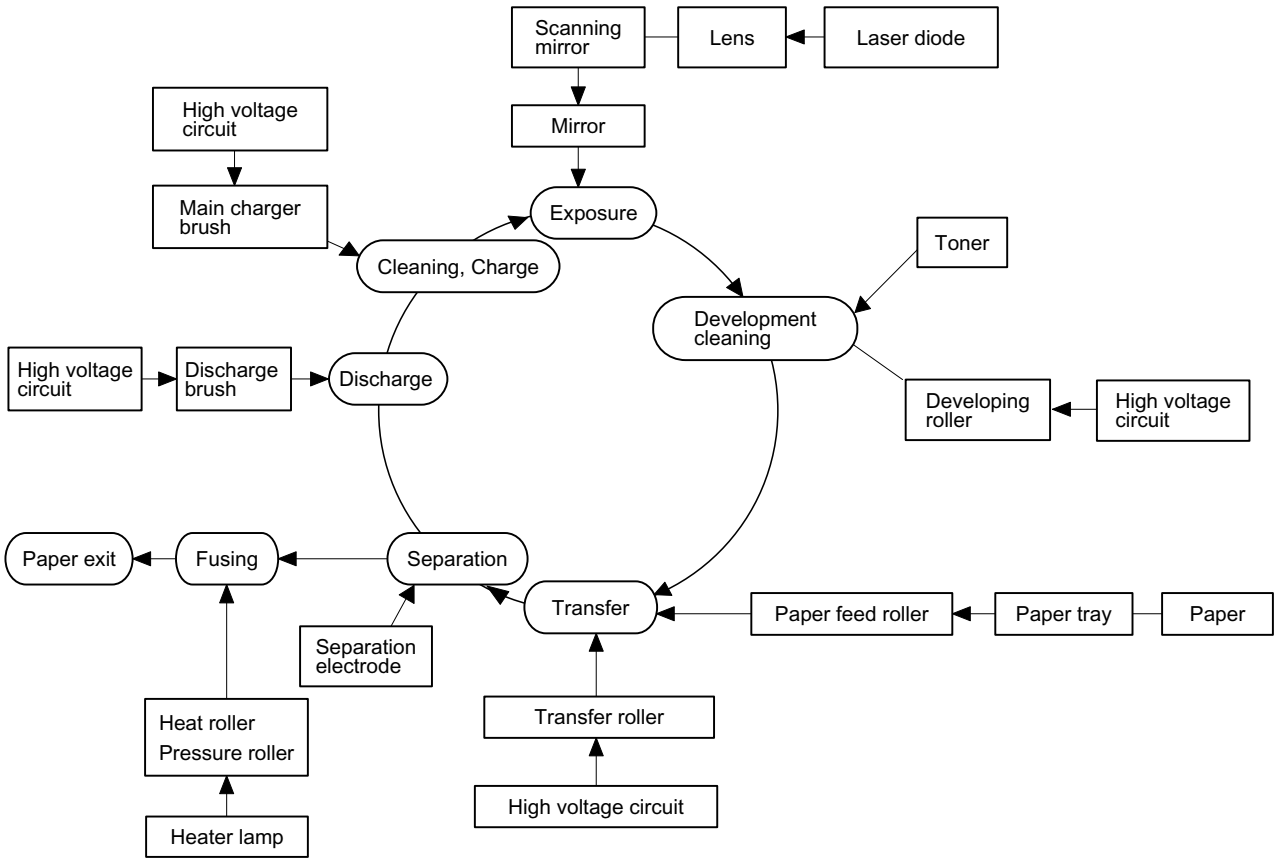


Fig. 9

7.4. Functions and operations of major parts

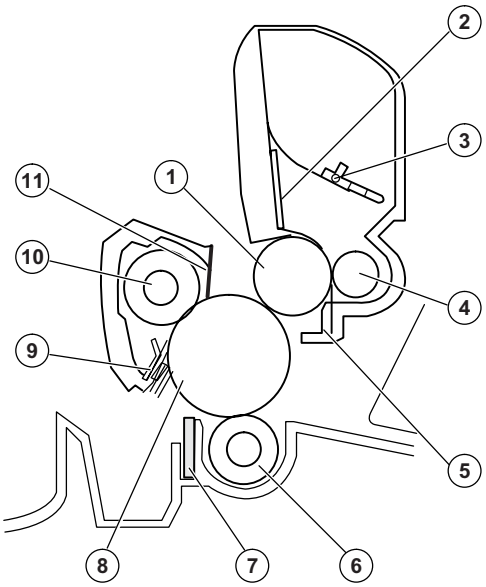


Fig. 10

①	Developing roller	⑤	Toner seal	⑨	Discharge brush
②	Doctor	⑥	Transfer roller	⑩	Main charger brush
③	Toner stirring plate	⑦	Separation electrode	⑪	Toner seal
④	Toner supply roller	⑧	OPC drum		

7.4.1 OPC drum unit

The OPC drum is charged and latent electrostatic images are formed on it and developed into visible toner images.

a. OPC drum

Latent electrostatic images are formed and developed into toner images on the OPC drum.

Organic Photo Conductor is used. The OPC surface is charged negatively by the main charger brush.

When the OPC is exposed to laser beam, the electric resistance of the exposed section falls and electric charge is generated in the OPC. As a result, electric charge on the OPC surface is removed. This principle is used to form latent electrostatic images.

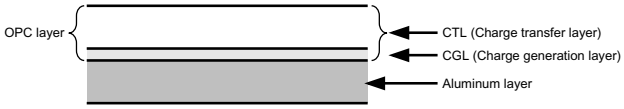


Fig. 11

b. Main charger brush

The main charger brush charges the OPC drum surface. It is composed of brush fiber, and is in the shape of a roller. A high voltage of AC 600V (P-P) and DC-850V are applied to charge the brush.

The main charger brush is in contact with the OPC drum. BY applying electric charge to the OPC drum, the OPC drum is charged to about 1kV.

c. Toner seal

The OPC drum unit is provided with two toner seals, which prevent leakage of toner remaining in the OPC drum unit.

7.4.2 Developing unit

Latent electrostatic images formed by laser beam on the OPC drum are developed to visible images by the developing unit. Toner is filled in the developing unit.

a. Developing roller

The developing roller is made of urethane and has a high electric resistance. It is flexible and is in close contact with the OPC drum. Toner on the developing roller is attached to latent electrostatic images on the OPC drum to form visible images on the OPC drum.

A voltage of DC-250V is applied the developing roller.

b. Doctor

The doctor is in close contact with the developing roller. It adjusts toner quantity on the developer roller surface.

The doctor is made of conductive material.

c. Toner supply roller

Toner is supplied to the developing roller by the sponge roller which is connected to the developing roller.

d. Toner stirring plate

This plate stirs toner in the developing unit to transport it to the developing roller smoothly.

e. Toner seal

The toner seal prevents toner from leaking outside the developing unit.

7.4.3 Transfer charger roller

The transfer charger roller is made of urethane and has a high electric resistance. It is flexible and is in close contact with the OPC drum.

A high voltage of AC 600V (P-P) and DC +3500V are applied to charge.

It positively charges paper transported from the paper feed section, which transfers negatively charged toner on the OPC drum onto the paper.

7.4.4 Separation electrode

This electrode is connected to the drum ground. It discharges paper which was positively charged in the transfer section to reduce the potential difference with the OPC drum to reduce static electricity between the paper and the OPC drum, thus facilitating separation of paper.

7.4.5 High voltage unit (in the Printer PWB)

A high voltage is generated by the inverter system, and is supplied to the main charger unit, the transfer charger unit, and the developing roller.

7.5. Image forming operation

STEP 1 (Cleaning, Charging): Residual toner the OPC drum is stirred and negative charges are scattered evenly on the OPC drum. (The OPC drum surface is evenly charged.)

The main charger is a rotating brush roller.

The main charger removes residual toner from the OPC drum by its rotating sweeping action and causes it to stick to the brush.

At the same time, a high voltage of -850V is applied to the main charger roller to generate a discharge of electricity between the roller and the OPC drum, generating positive and negative charges. The negative charges are attracted to the OPC drum, and evenly distributed on the OPC drum. (The OPC drum surface is evenly charged.)

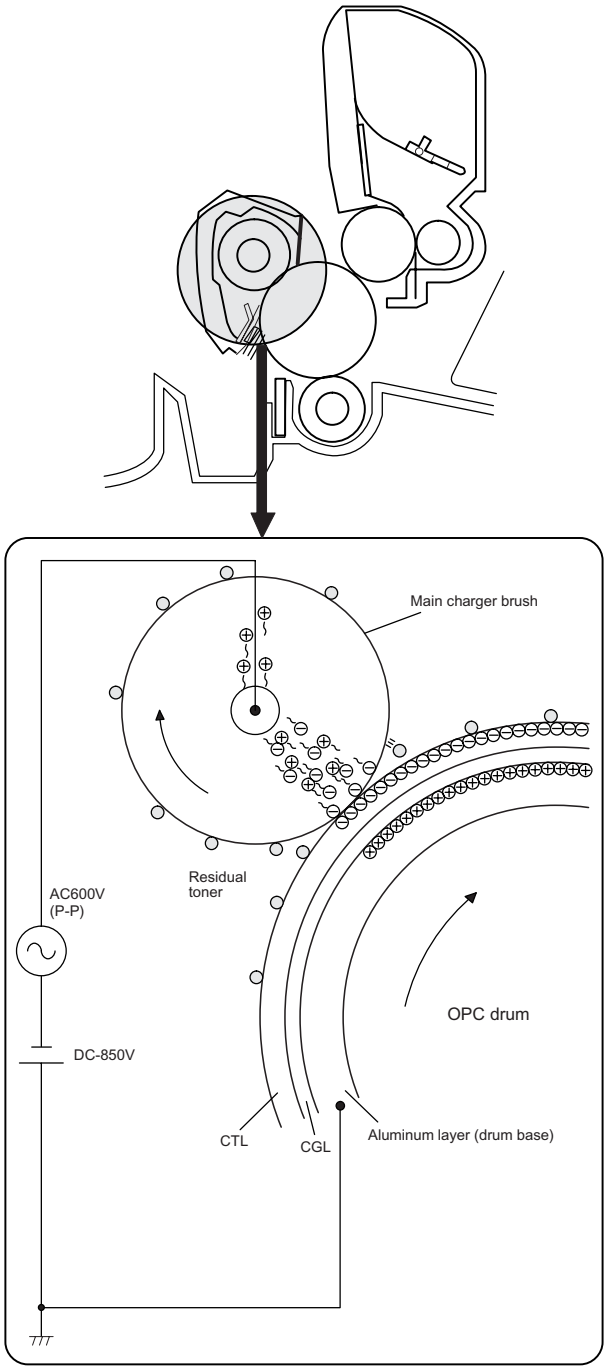


Fig. 12

STEP 2 (Exposure): Laser beam scanning light corresponding to the print data is radiated on the OPC drum.

Positive and negative charges are generated in the OPC drum CGL exposed with the laser beam.

Positive charges generated in the CGL are attracted toward the OPC drum surface (negative charges), and negative charges toward the aluminum layer (positive charges).

Therefore, the positive and negative charges neutralize each other in the laser-exposed area of the OPC drum surface and the aluminum layer, decreasing the potential of the OPC drum surface.

The area which is not exposed to laser beam has no change, and the OPC drum surface remains negatively charged to keep a high potential. As a result, latent electrostatic images are formed on the OPC drum.

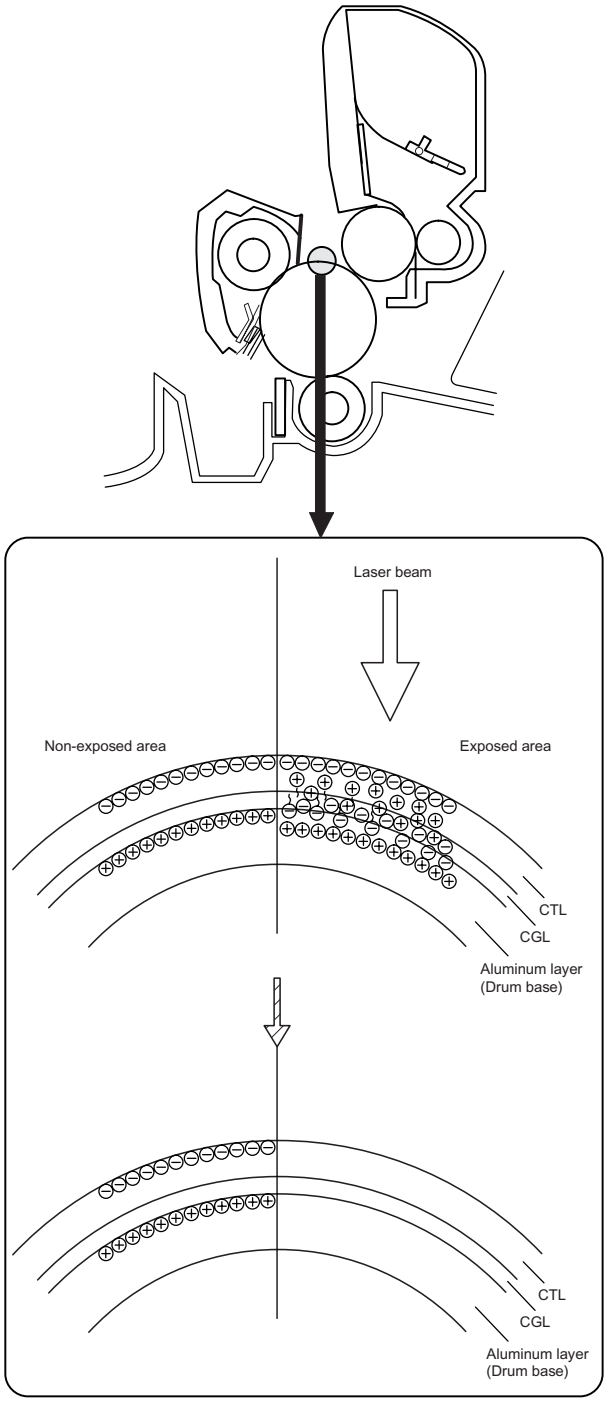


Fig. 13

STEP 3 (Development): Toner is attached to the latent electrostatic images on the OPC drum to form visible images.

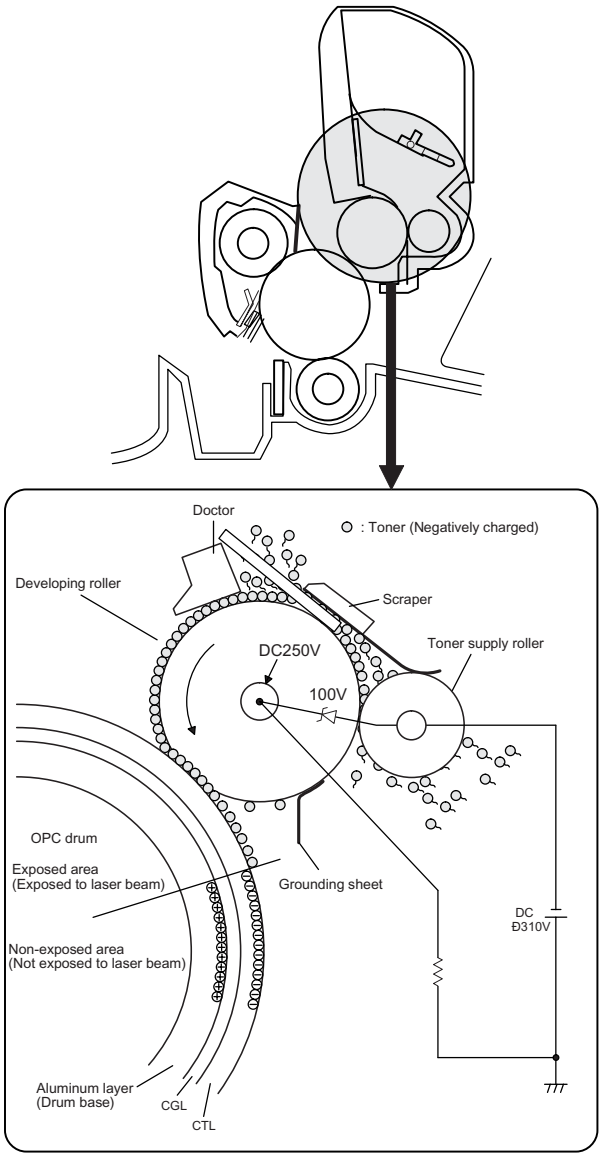


Fig. 14

Toner is transported to the scraper area by the toner supply roller and the developing roller. The quantity of toner to be transported to the doctor section is controlled by the scraper. Toner transported to the doctor section is then passed between the developing roller and the doctor to form a thin toner layer on the developing roller by the pressure applied by the doctor.

When toner passes between the developing roller and the doctor, it is charged negatively by friction.

When an area of OPC drum which was exposed to laser beam and lost its charge comes in contact with the developing roller, toner moves from the developing roller to the OPC drum surface.

The principle of toner movement from the developing roller to the OPC drum surface is as follows.

The bias voltage of DC-310V is applied to the developing roller. Toner is charged negatively by the difference (electrical energy) between the bias voltage and the OPC drum surface potential and is attracted to the OPC drum surface which is positively charged.

At that time, the potential of the area of the OPC drum which was exposed to the laser beam and lost its charge is higher than that of the developing roller.

On the other hand, when an area of OPC drum which was not exposed to the laser beam and did not lose its charge comes in contact with the developing roller, any residual toner attached to the OPC drum is transferred to the developing roller which is more positively charged.

As a result, unnecessary toner on the OPC drum is collected by the developing unit.

The operating principle for that case is contrary to that for transfer of toner from the developing roller to the OPC drum surface. (The electric field energy direction is contrary.)

STEP 4 (Transfer): Visible images of toner on the OPC drum are transferred to the paper.

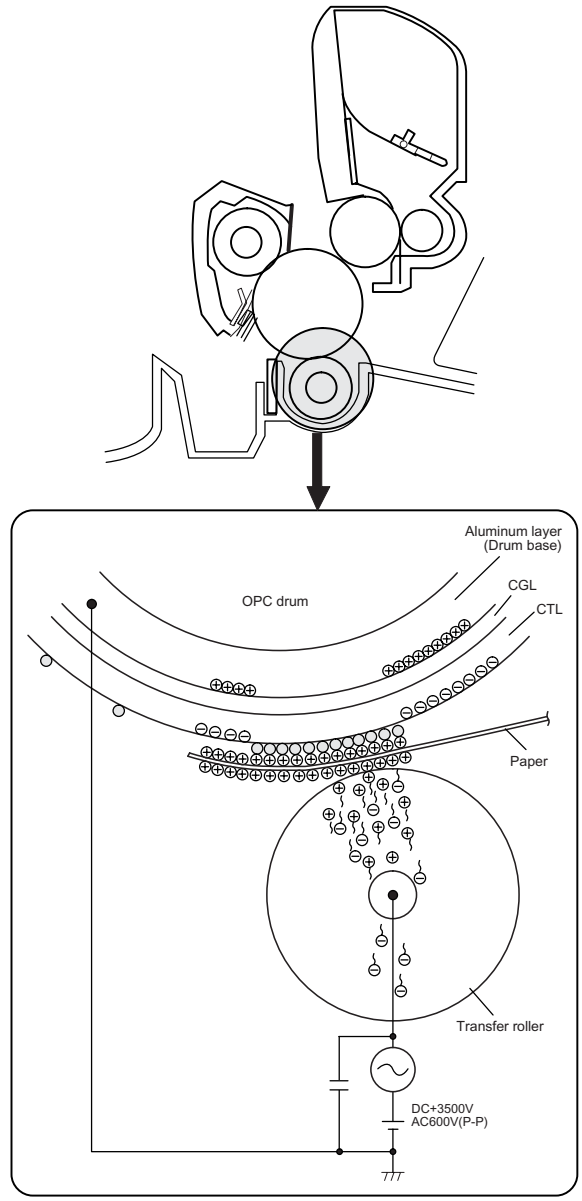


Fig. 15

The high voltage of DC+3500V plus AC600V (P-P) is applied to the transfer roller to generate electric discharge between the roller and the OPC drum, generating positive and negative charges. Positive charges are attracted to the OPC drum and attached to the paper transported between the transfer roller and the OPC drum. Therefore the paper has a strong positive charge.

Negatively charged toner on the OPC drum is attracted by the paper which is positively charged, and the visible images of toner are transferred onto the paper.

STEP 5 (Paper separation): The paper is separated from the OPC drum.

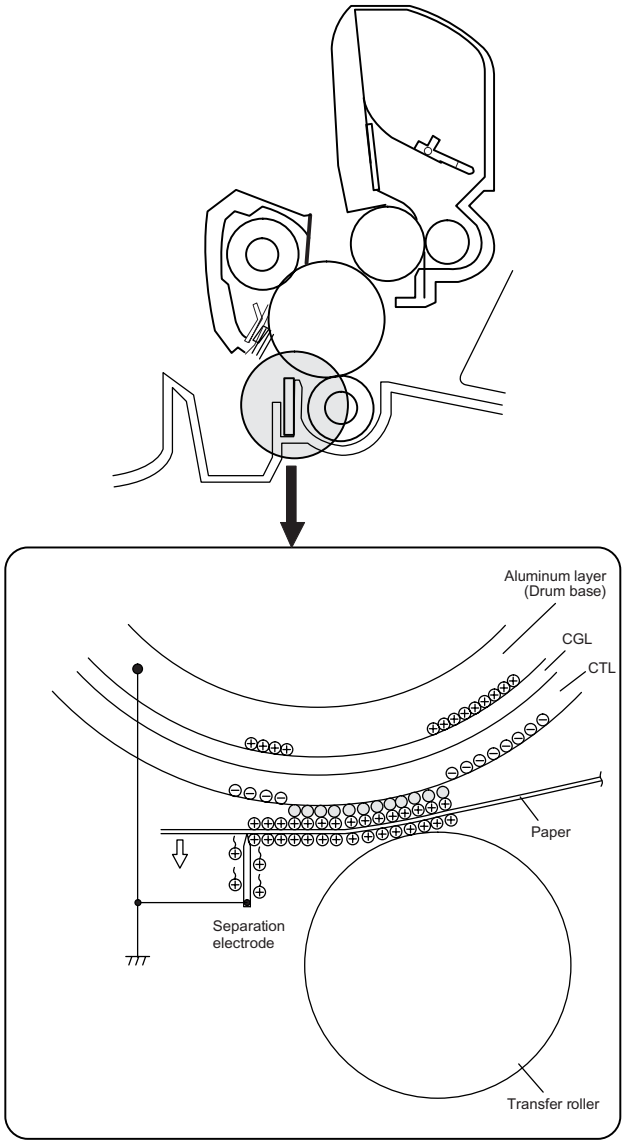


Fig. 16

There is an electrostatic force between the paper which is positively charged in transfer operation and the OPC drum which is negatively charged. The positive charge on the paper is released to the separation electrode, which is the same potential as the aluminum layer of the OPC drum, to reduce the potential difference between the OPC drum and the paper, reducing the electrostatic force.

This operation facilitates separation of the paper from the OPC drum.

STEP 6 (Discharge): The drum surface is discharged to facilitate cleaning of the drum surface. (The remaining toner is easily collected by the main charger roller.)

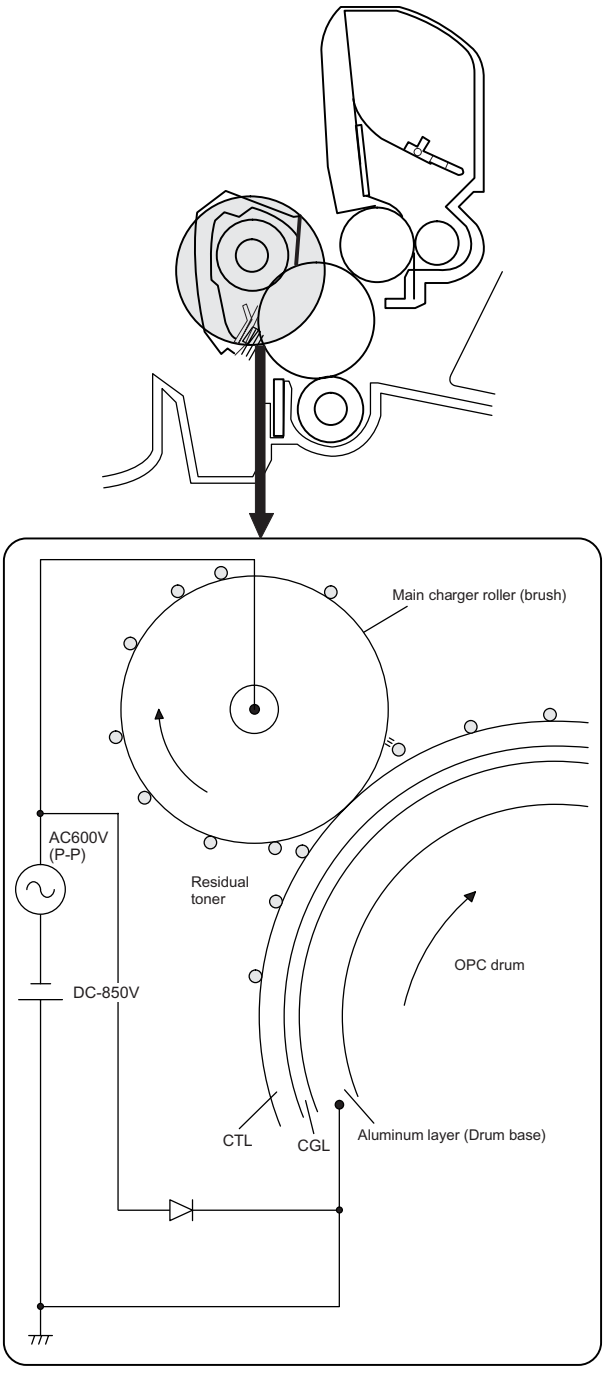


Fig. 17

STEP 7 (Cleaning): Residual toner on the OPC drum is removed.

The main charger is a rotating brush roller.

The main charger removes residual toner from the OPC drum by its rotating sweeping action and causes it to stick to the brush. The main charger brush is in close contact with the mesh-type brush cleaning plate which removes toner and paper dust from the main charger brush mechanically.

7.6. OPC drum surface potential

7.6.1 Transition of OPC drum surface potential by print operation

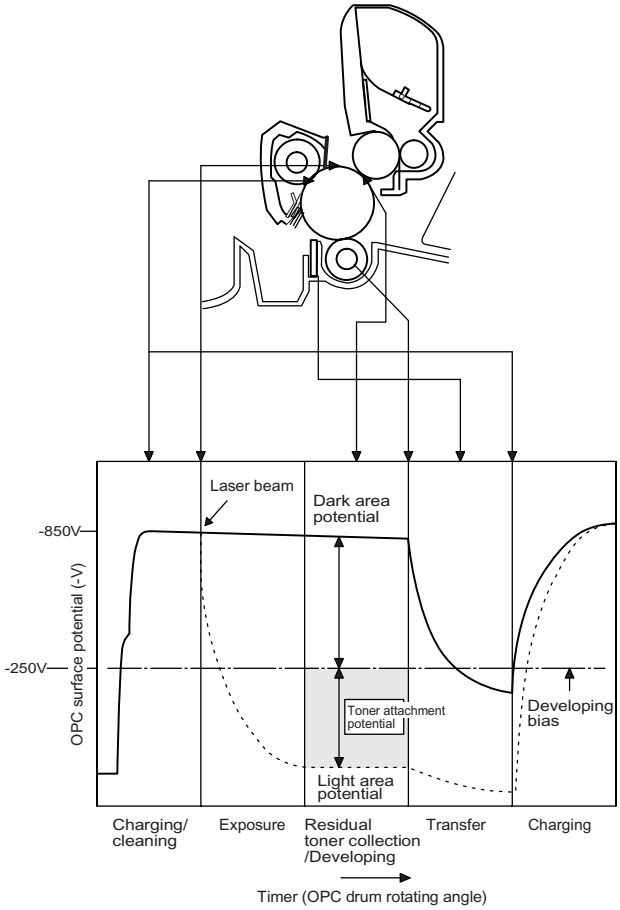


Fig. 18

7.6.2 OPC drum surface potential and developing bias voltage in development

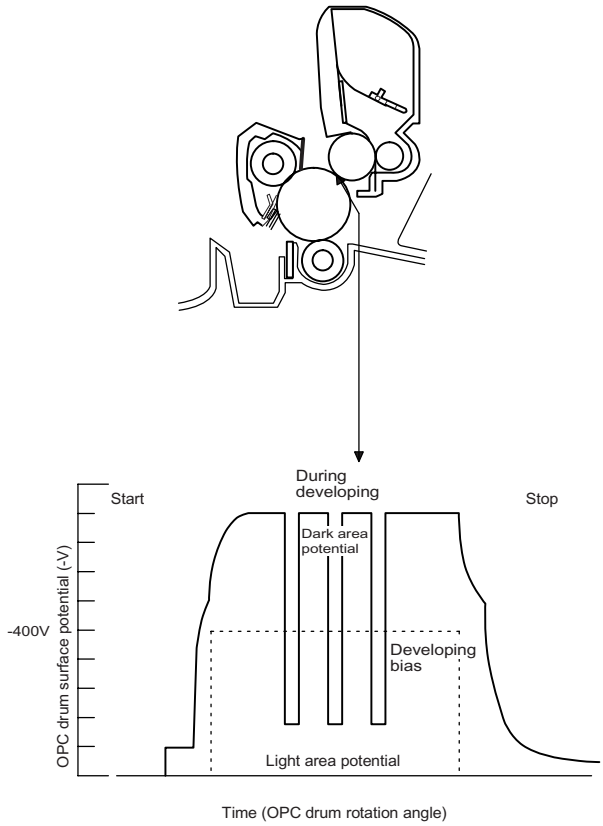


Fig. 19

[2] Disassembly, assembly, lubrication

This chapter describes the disassembly, assembly, and lubrication procedures.

(Contents)

This chapter describes the disassembly procedures of parts. For assembly, reverse the disassembly procedures.

If a special care is required, a note is provided.

1. Panel unit
2. Top cabinet, rear cabinet
3. Control PWB unit, TEL/LIU PWB unit, Printer unit
4. Printer PWB unit, Power supply PWB unit
5. Feed guide unit, Scanner bracket
6. Document guide lower, Scanner unit
7. Panel unit, Document guide upper unit
8. Drive unit
9. Upper frame unit (optical frame unit)
10. Main motor
11. Paper feed roller
12. Paper feed solenoid
13. Sleeve release lever
14. PE lever (Paper Empty lever)
15. Lock lever
16. Right fan
17. Fusing unit
18. Separate nails
19. Heat roller, heater lamp
20. Thermal fuses
21. Thermistor
22. AC connection wire
23. Paper exit roller upper
24. Transfer roller
25. Fusing roller
26. Separation electrode
27. PIN actuator (Paper in detection lever)
28. POUT actuator (Paper out detection lever)
29. Separate plate ass'y
30. High voltage terminal DR-MC (High voltage terminal: Photoconductor drum main charger)
31. High voltage terminal TC (High voltage terminal: transfer charger)
32. DV bias electrode

(Necessary tools)

No special tools are required for disassembly and assembly of this machine.

As general tools, screwdrivers (+) (–) (Large/small), spring hook, and tweezers are used.

(Grease)

The following grease is used in this machine.

No.	Parts code	Price rank	Part name
1	UKOG-0168FCZZ	AR	Conductive grease
2	UKOG-0238FCZZ	BB	Floil G-484

Major points to be greased are as follows.

[Conductive grease]

- Apply a small quantity of grease to the transfer roller and the high voltage terminal TC.

[Floil G-484]

- Inner circumference and tooth surface of the fusing clutch gear.
- Tooth surface of the main motor gear.
- Paper feed roller gear, Clutch R sleeve, Clutch spring.
- The shaft and tooth surface of the other gears.
- Developer drive gear A tooth peripheral.
- PU idle gear A tooth peripheral.

When any parts which require greasing up are disassembled or replaced, be sure to grease them when reassembling.

1)

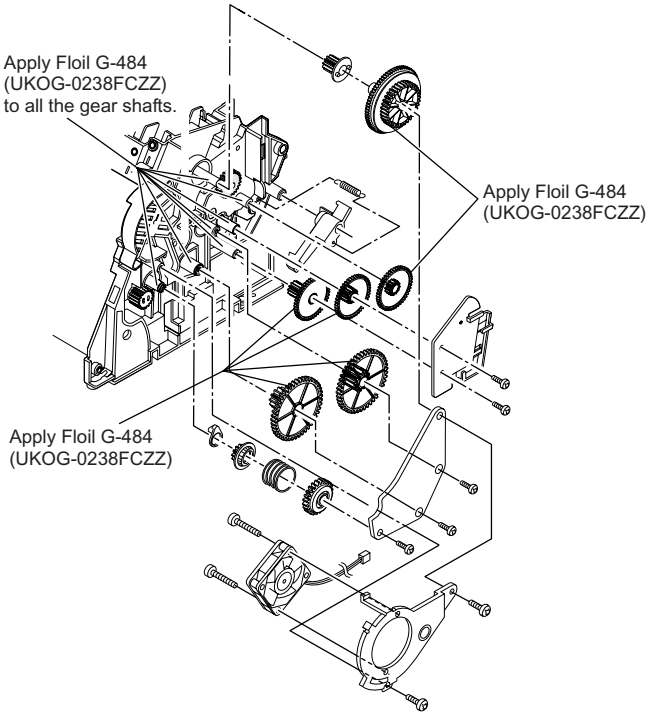


Fig. 1

2) Apply Floil G-484 (UKOG-0238FCZZ) to the fusing clutch gear teeth and the inside.

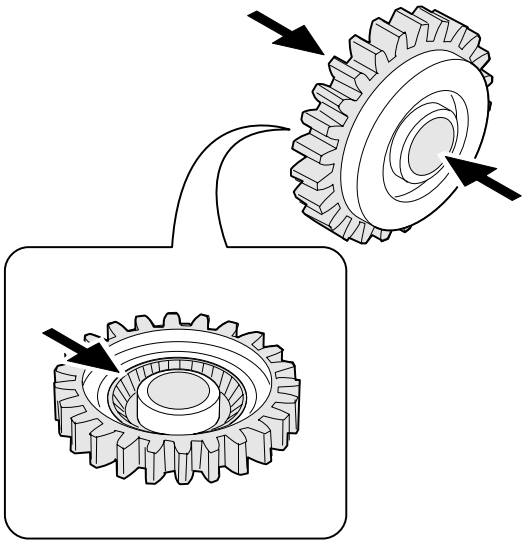


Fig. 2

3) Apply Floil G-484 (UKOG-0238FCZZ) to the gear teeth of the main motor.

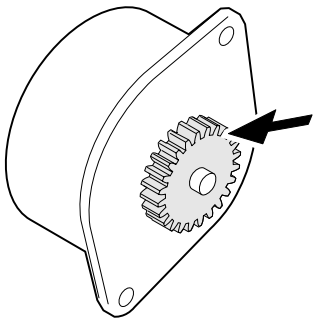


Fig. 3

4) Apply Floil G-484 (UKOG-0238FCZZ) or white grease X5-6020 (UKOG-0158FCZZ) to the sections shown with arrows in the figure below.

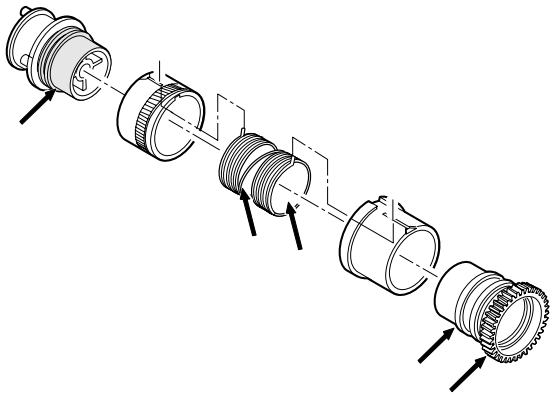


Fig. 4

- Apply grease to the paper feed roller gear teeth peripheral and the side.
- Apply grease to the whole surface of the clutch spring.
- Apply grease the side of the clutch R sleeve.

5) Apply Floil G-484 (UKOG-0238FCZZ) to the drum lock lever.

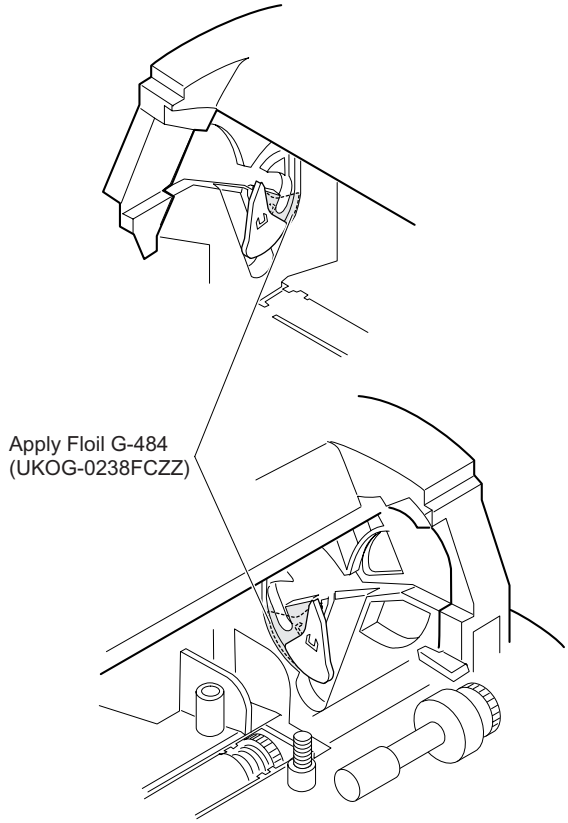


Fig. 5

NOTE: For disassembly and assembly, be careful of the following items.

a. The units and parts which should be replaced in maintenance are described.
b. The screws which are difficult to be found and the units and parts which require certain disassembly sequence or special technique are described. The units and parts which can be disassembled easily are not described.
c. The cables and clamps are not described unless any special note is required. When removing them, remember the positions.
d. Remove the imaging cartridge and the drum cartridge before disassembly.
e. The parts which are not described in the parts guide must not be disassembled.
f. The optical system require precise adjustments, which are not performed in the market. Replace the unit of the optical system which are attached to the upper frame, and do not disassemble it.

1. Panel unit

1. Remove screw, and remove ROM cover. (Hook x 5)
2. Remove three screws.
3. Remove screw.
4. Remove four cables, and remove panel unit.
5. Remove two screws, and remove inner cabinet. (Hook x 2)

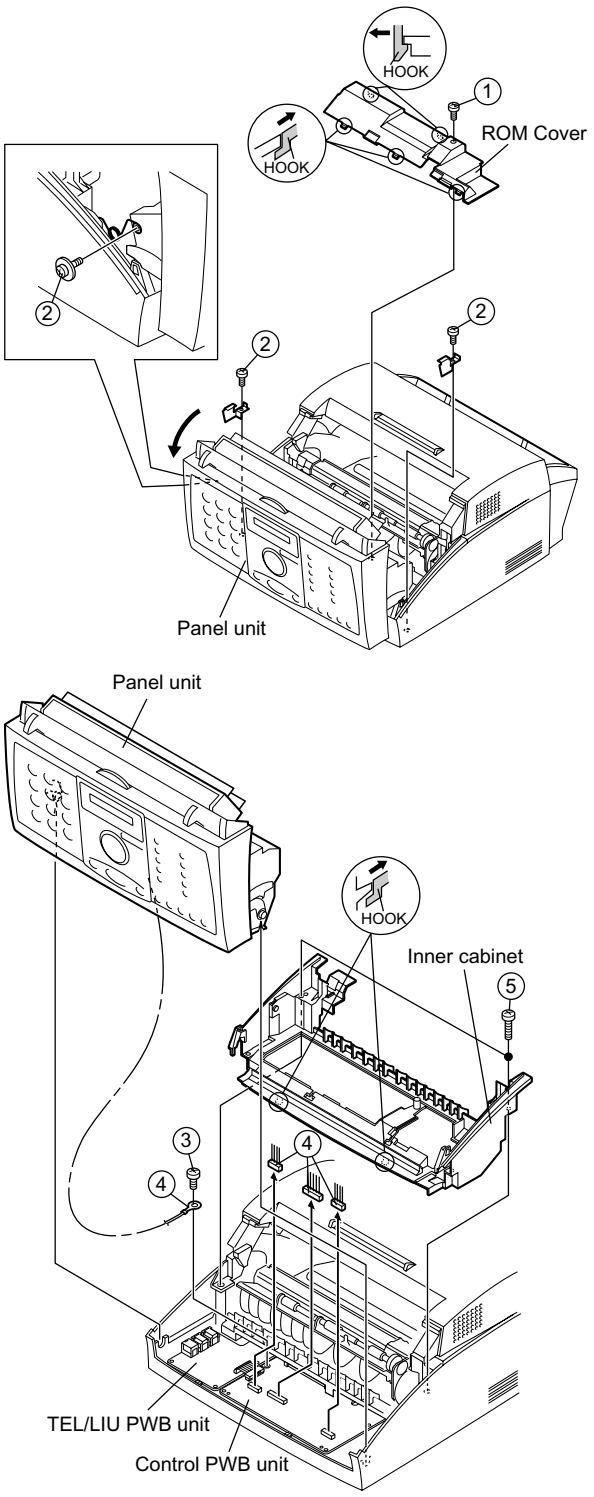


Fig. 6

2. Top cabinet, rear cabinet

1. Remove two screws, and remove top cabinet. (Hook x 2)
2. Remove rear cabinet. (Hook x 5)

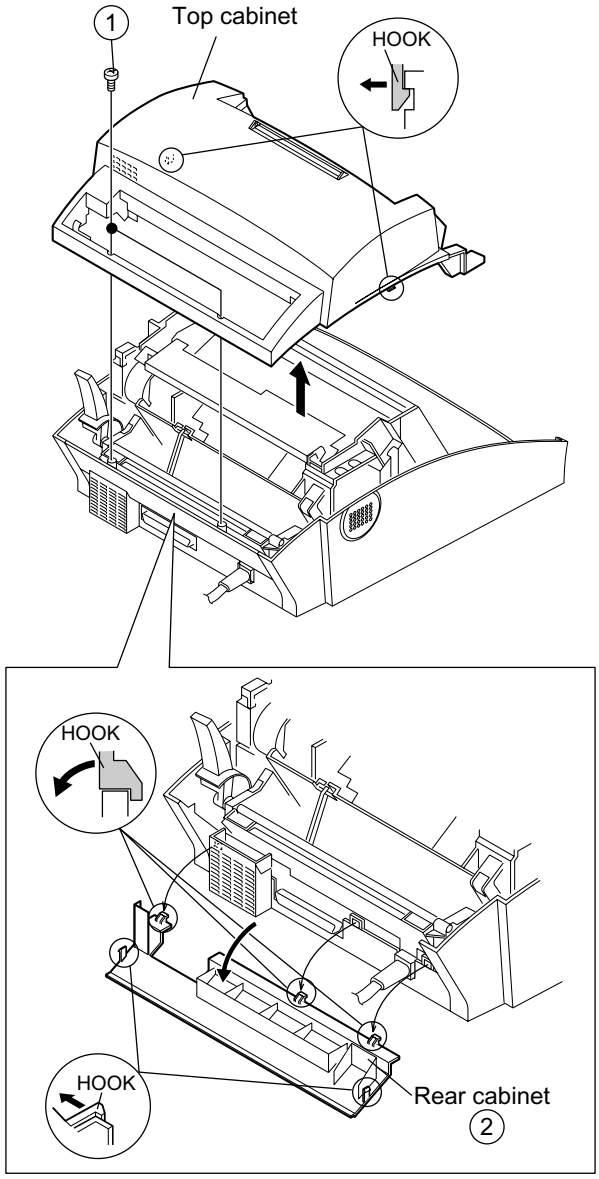


Fig. 7

3. Control PWB unit, LIU PWB unit, Printer unit

1. Remove six screws.
2. Remove four cables.
3. Remove two connectors, and remove control PWB unit and LIU PWB unit.
4. Remove five screws, and remove printer unit.

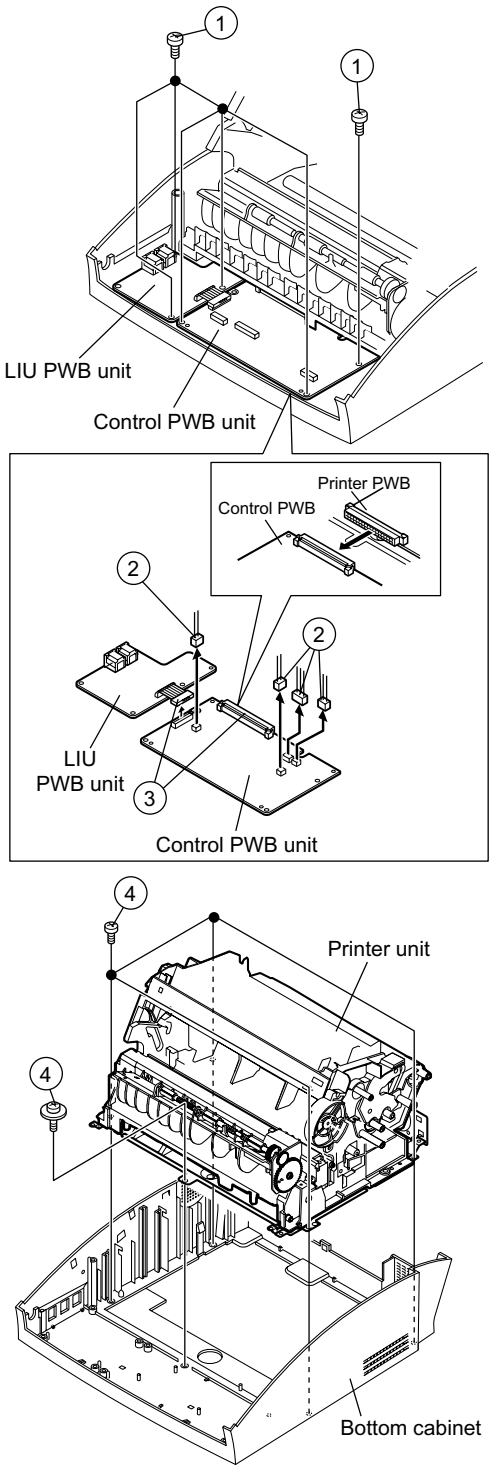


Fig. 8

4. Printer PWB unit, Power supply PWB unit

1. Remove four screws, and remove printer unit.
2. Remove five cables.
3. Remove four screws.
4. Remove fan motor cable, and remove printer PWB unit.
5. Remove five screws, and remove power supply PWB unit.
6. Remove connector of AC cord.

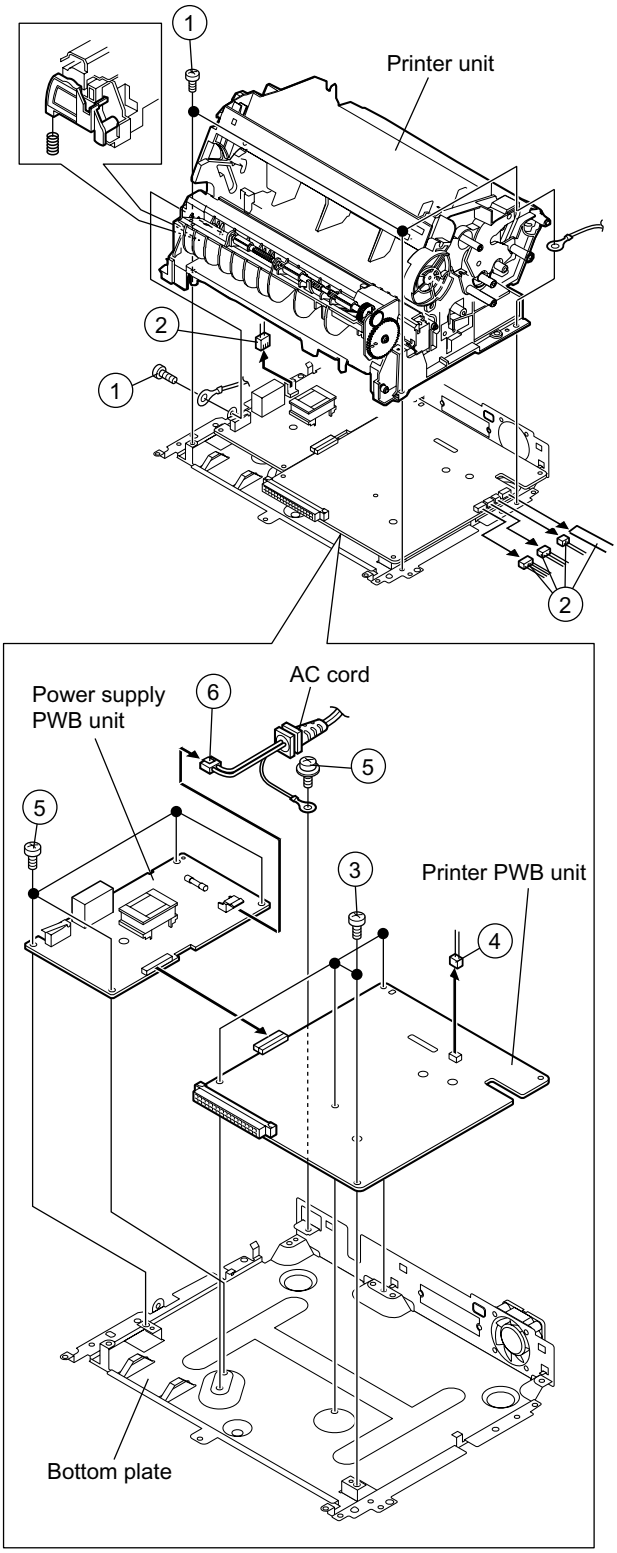


Fig. 9

5. Feed guide unit, Scanner bracket

1. Remove two screws, and remove feed guide unit. (Hook x 7)
2. Remove two screws.
3. Remove three cables.
4. Remove two screws, and remove scanner bracket.
5. Remove two screws.

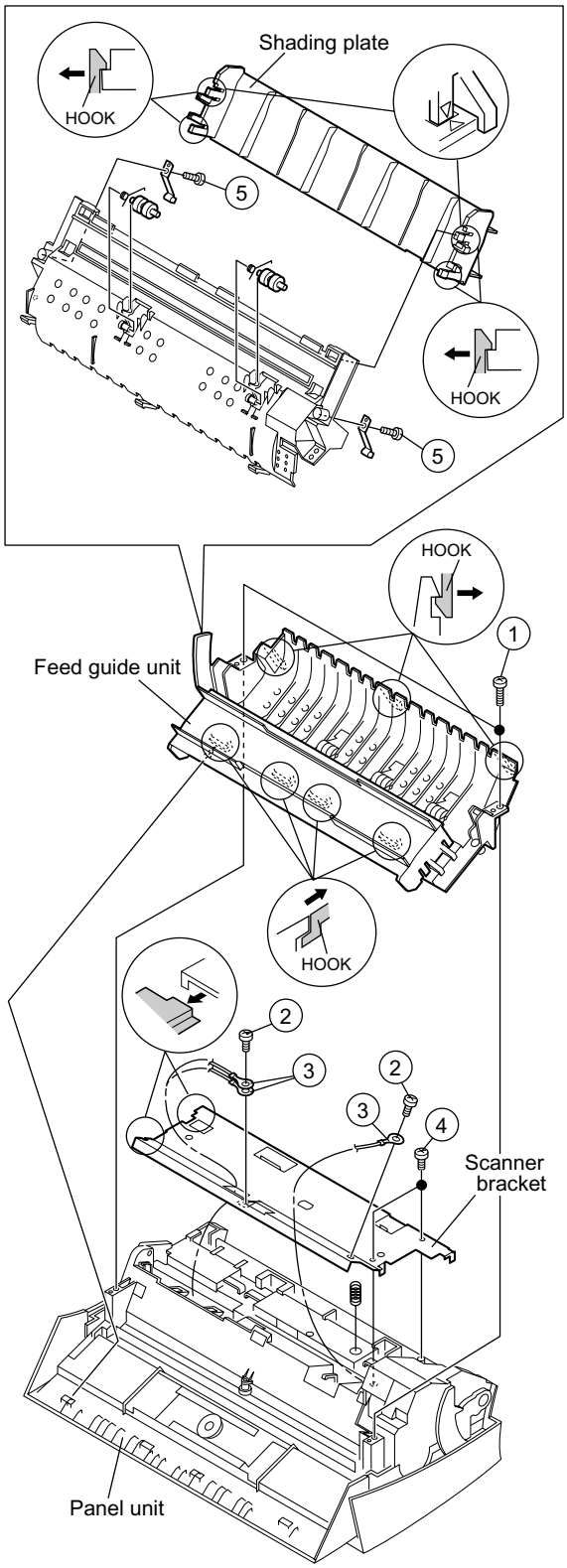


Fig. 10

6. Document guide lower, Scanner unit

1. Remove three screws, and remove document guide lower. (Hook x 3)
2. Remove screw.
3. Remove screw.

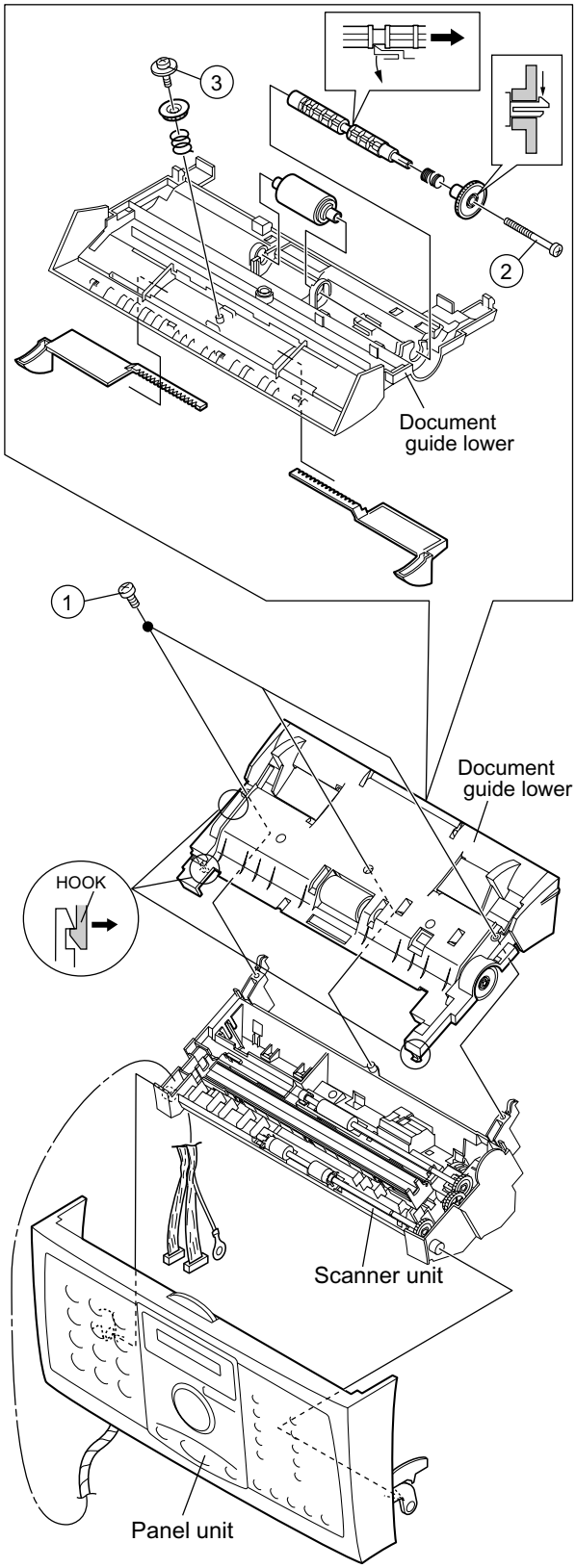


Fig. 11

7. Panel unit, Document guide upper unit

1. Remove two screws, and remove document guide upper unit.

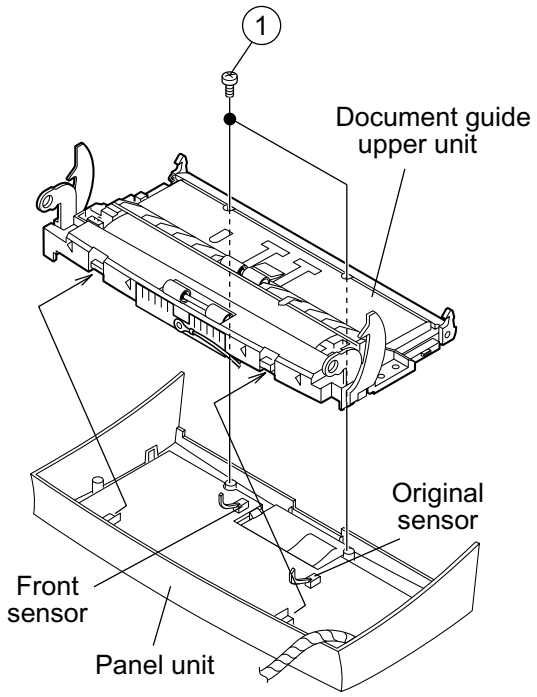


Fig. 12

8. Drive unit

1. Remove two screws, and remove drive unit.
2. Remove two screws.

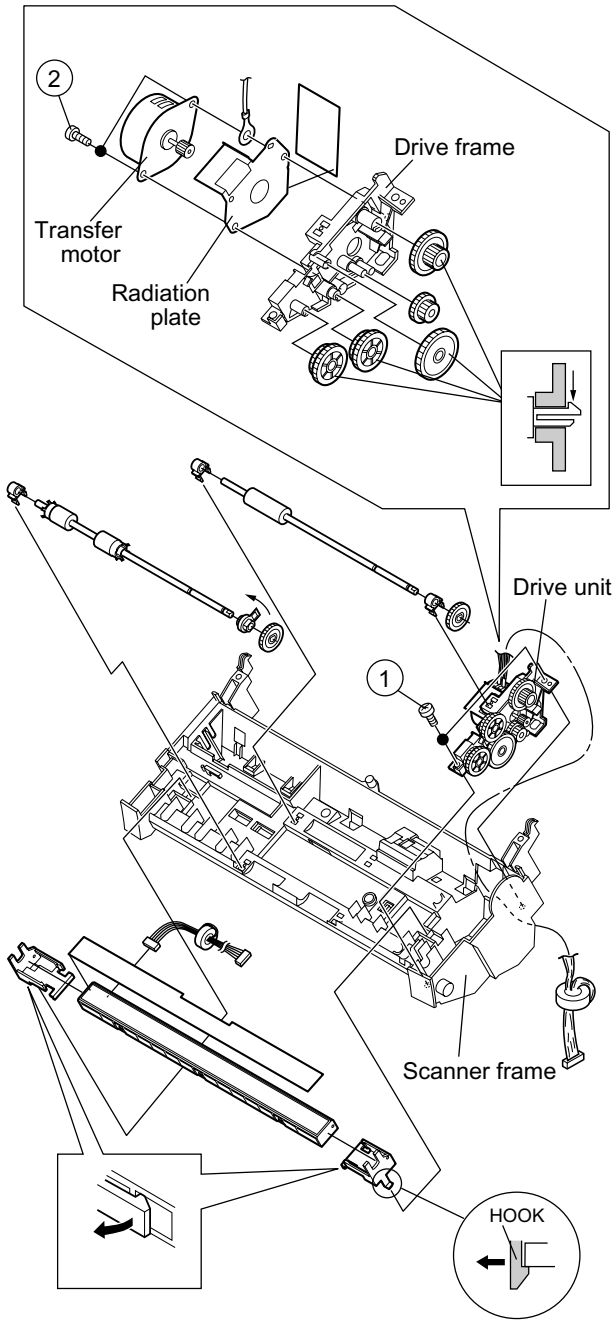


Fig. 13

9. Upper frame unit (optical frame unit)

1. Remove three connectors.
2. Remove four screws, and remove fan bracket and right fan.
3. Remove three screws, and remove gear plate.

   At that time, fusing clutch gears and fusing clutch spring are also disassembled.
4. Remove motor idle gear.
5. Remove developer drive gear A and developer drive gear B.
6. Remove four screws.

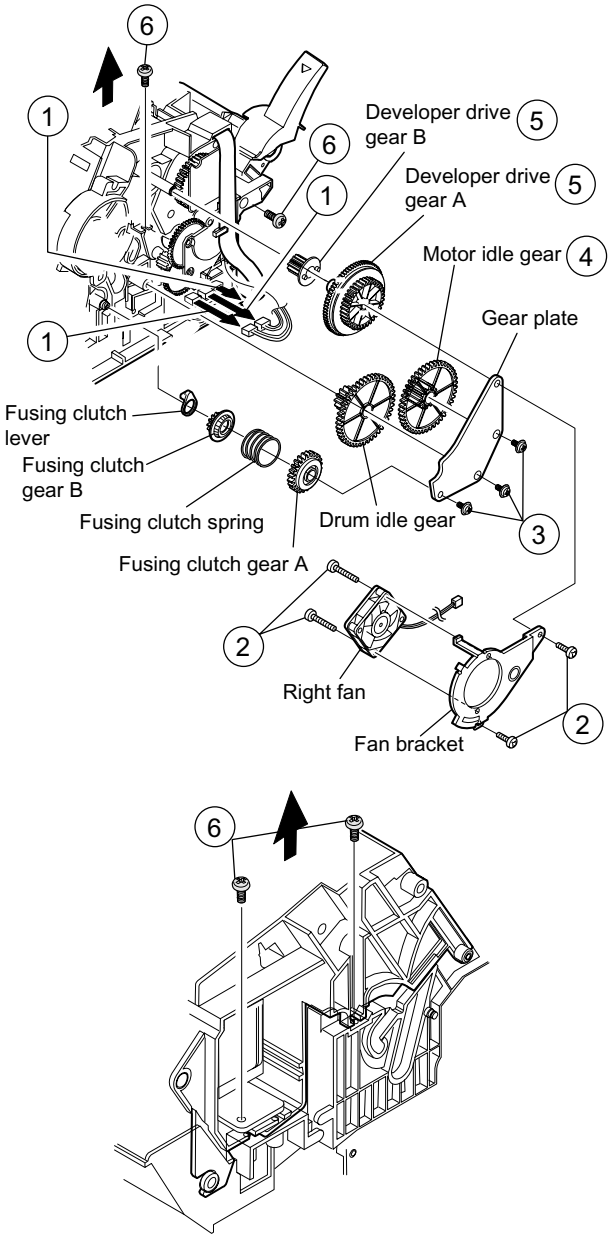


Fig. 14

7. Remove the arm of upper frame unit from the lower frame boss.
8. Rotate upper frame unit in the direction of arrow (B) so that the arm can be disassembled from the lower frame boss.

Note for assembly

- When attaching the upper and the lower frames, be careful not to pinch the cables.

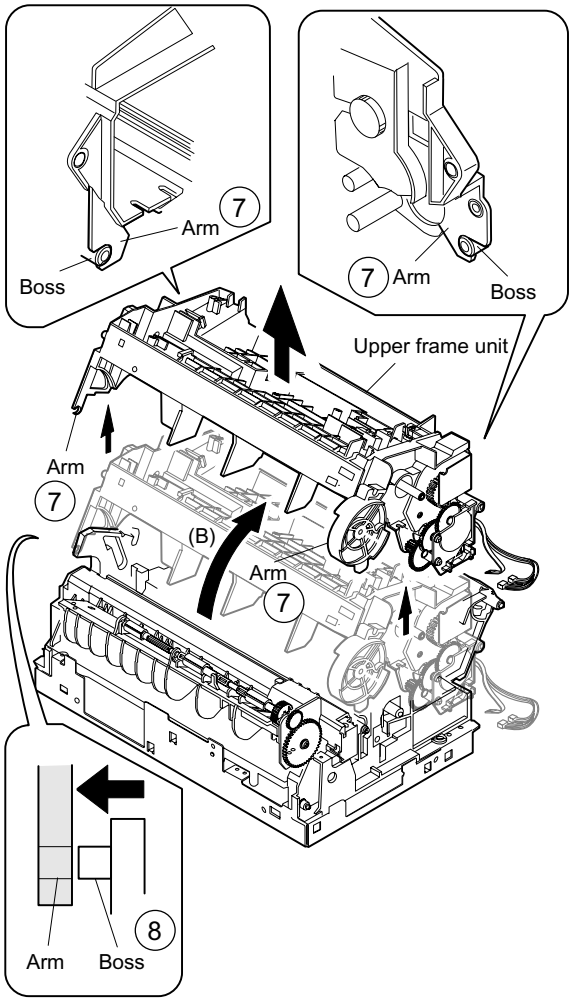


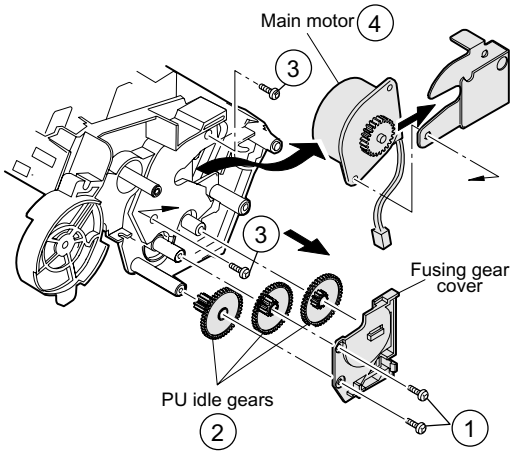
Fig. 15

10. Main motor

1. Remove two screws and remove fusing gear cover.
2. Remove PU idle gears.
3. Remove two screws.
4. Slide and remove main motor from the notch in the upper frame.
   - At that time, be careful not to damage or bend the shading sheet.

Note for assembly

- When attaching main motor, put the cable to the right side.



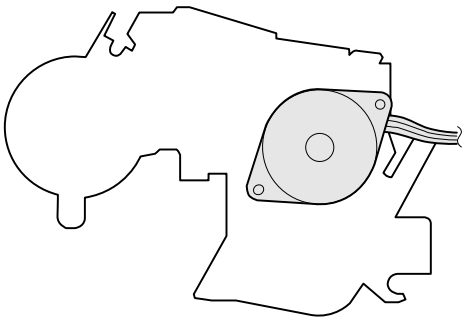


Fig. 16

11. Paper feed roller

1. Remove two screws and remove fusing gear cover.
2. Remove PU idler gears.

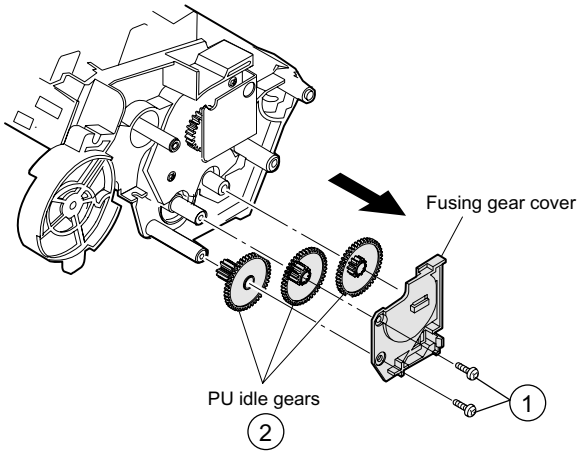


Fig. 17

3. Remove the tray lock lever.

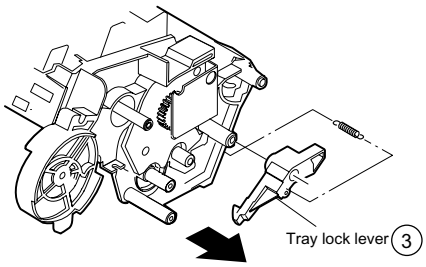


Fig. 18

The clearance between the clutch boss and the clutch gear must be 0.1(+0.02/–0.03)mm

4. Remove the red reversing screw from the paper feed roller shaft.
5. Remove the paper feed clutch gear.
6. Pull out the paper feed roller.
7. Pull out the clutch sleeve, the clutch spring, the clutch R sleeve, and the paper feed roller boss from the paper feed roller shaft at the same time.

Note for assembly

- When assembling the paper feed roller boss, the clutch R sleeve, the clutch spring, and the clutch sleeve to the paper feed roller, be careful to the directions of the parts. Insert one of the bent section (Ⅰ) of the clutch spring into the hole (Ⅱ) in the clutch R sleeve, and insert the other bent section into the hole (Ⅲ) in the clutch sleeve securely.

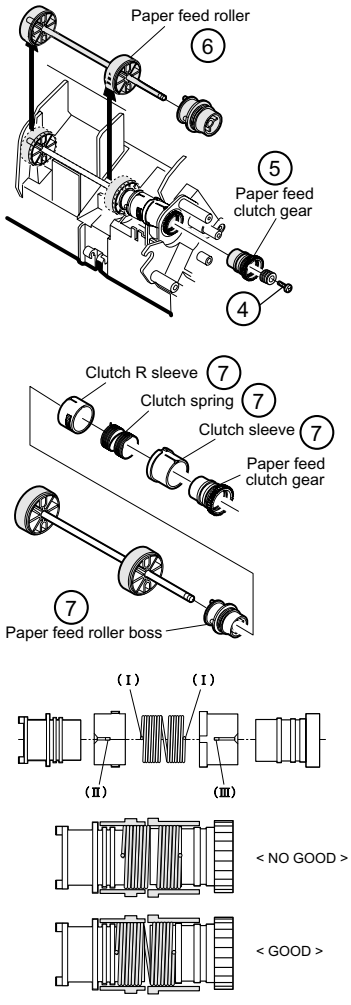


Fig. 19

12. Paper feed solenoid

1. Remove connector.
2. Remove lever release spring which is attached to sleeve release lever.
3. Remove one screw.
4. Slide paper feed solenoid and remove it from between curved mirror ass'y and the upper frame.

NOTE: At that time, do not disassemble curved mirror ass'y. (Never loosen the fixing screw.) If it is removed or shifted, precise adjustments are required, which cannot be performed in the market.

Note for assembly

- When lever release spring is completely removed, and when it is attached again, hang the one side of lever release spring on paper feed solenoid before attaching paper feed solenoid to the upper frame.
- When attaching the paper feed solenoid, refer to the above figure for the correct fixing position.
- Be careful that the arm of paper feed solenoid is under sleeve release lever.

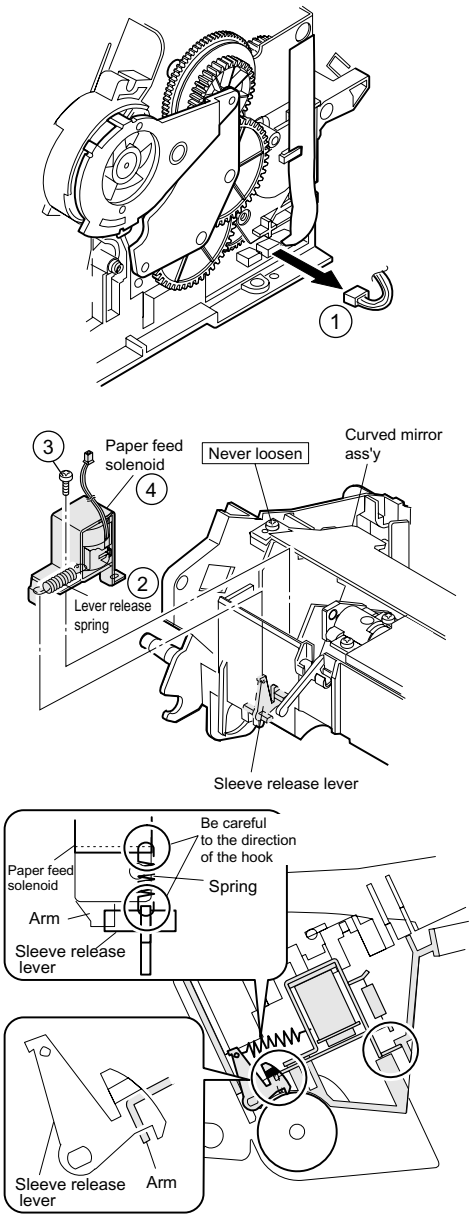


Fig. 20

13. Sleeve release lever

1. Rotate sleeve release lever in the direction (A) and remove the shaft of sleeve release lever from the notch of the upper frame and remove it from the upper frame.

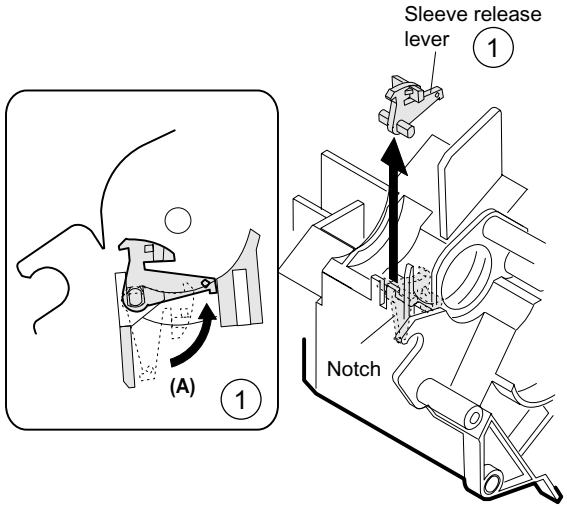


Fig. 21

14. PE lever (Paper Empty lever)

1. Slightly turn the PE lever in the direction of arrow (A), and slide it in the direction of arrow (B).
2. Remove the notch section of PE lever shaft from the notch section of the upper frame as shown in arrow (C), and remove PE lever.

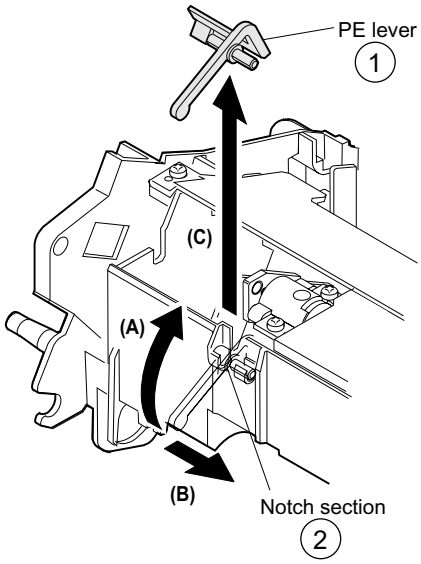


Fig. 22

15. Lock lever

1. Remove connectors, and remove the cables from fusing gear cover.
2. Remove two screws, and remove fusing gear cover.
3. Remove lock lever spring, and pull out lock lever from the upper frame.

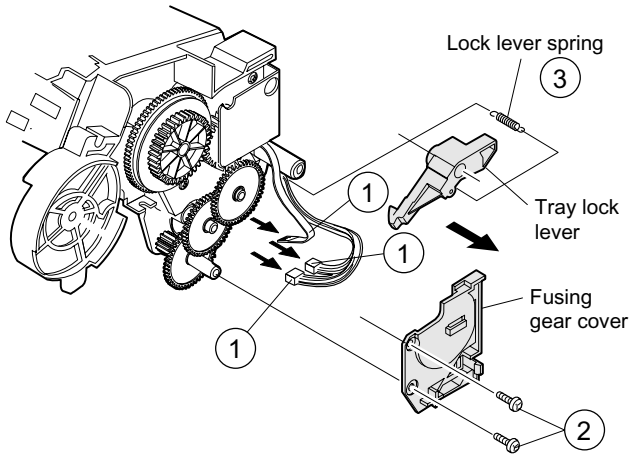


Fig. 23

16. Right fan

1. Remove four screws, and remove right fan and fan bracket.

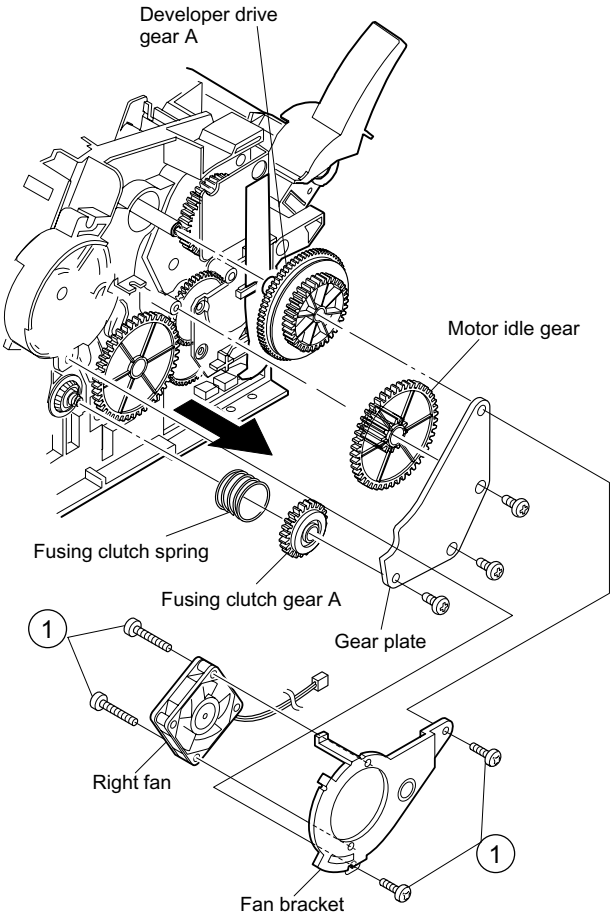


Fig. 24

17. Fusing unit

1. Remove connectors.
2. Release the protect of the cable connected to 1 from the lower frame.
3. Remove two fixing screws of fusing harness (white, black).

Power	Thermal fuse (upper)	Heater lamp (lower)
100V series	Black	White

4. Remove two screws of the fusing section.
5. Pull out the fusing unit.

Note for assembly

- When attaching the fusing harness, be careful to the color and do not attach reversely.

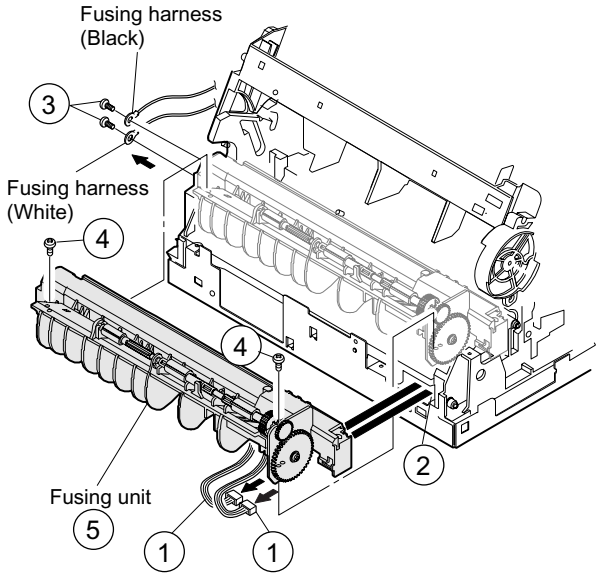


Fig. 25

18. Separate nails

1. Remove four springs and remove four separate nails.

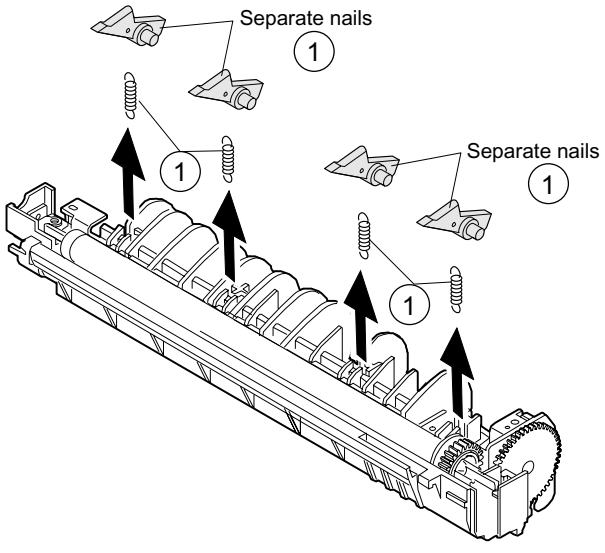


Fig. 26

19. Heat roller, heater lamp

1. Remove two screws.
2. Lift up the heat roller together with heater lamp, and slide it in the direction of arrow (A) and remove from fusing cover.

   Insert paper between the separate nail and the heat roller not to damage the heat roller surface.

   At that time, fusing gear and fusing bearing are also disassembled.
3. Remove heater lamp from heat roller.

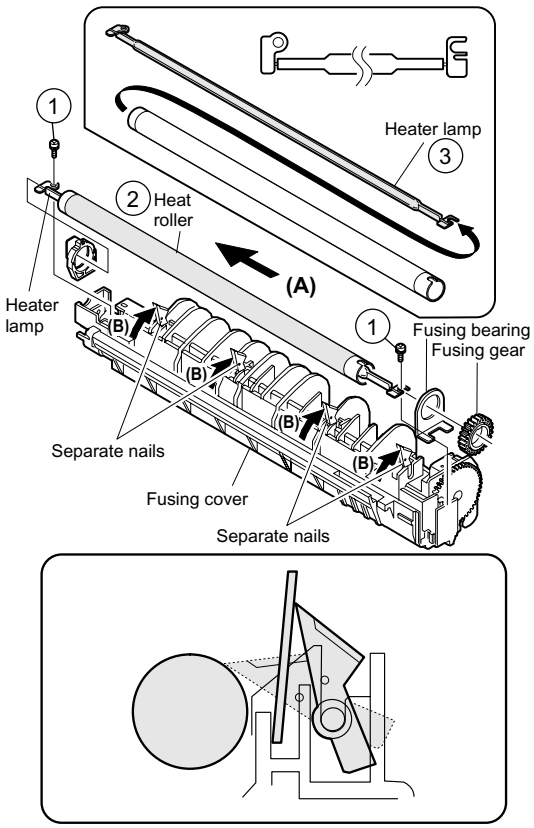


Fig. 27

Note for assembly (additional phrase)

When assembling the heat roller, insert a paper between the separate nail and the heat roller in order not to scratch the heat roller surface.

- When attaching heat roller to fusing cover, lift up the 4 parts of the separate nails.
- When inserting heater lamp into heat roller, check the inserting direction. (Check the shape of the terminal.)
- When attaching fusing gear, check the direction as follows.

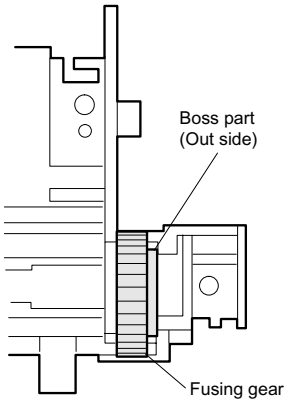


Fig. 28

- When passing heat roller through fusing gear, pass the notch of heat roller through the convex part of fusing gear as shown.

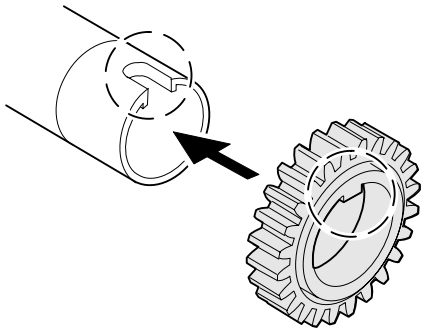


Fig. 29

20. Thermal fuses

1. Remove one screw.
2. Remove the temperature fuse holder from the fusing cover.
3. Release the protect of the temperature fuse holder cable, and remove the temperature fuse holder.
4. Remove the fuse sheet.
5. Remove two screws. (One from the back, and one from the front.)
6. Remove the temperature fuse from the fusing cover.

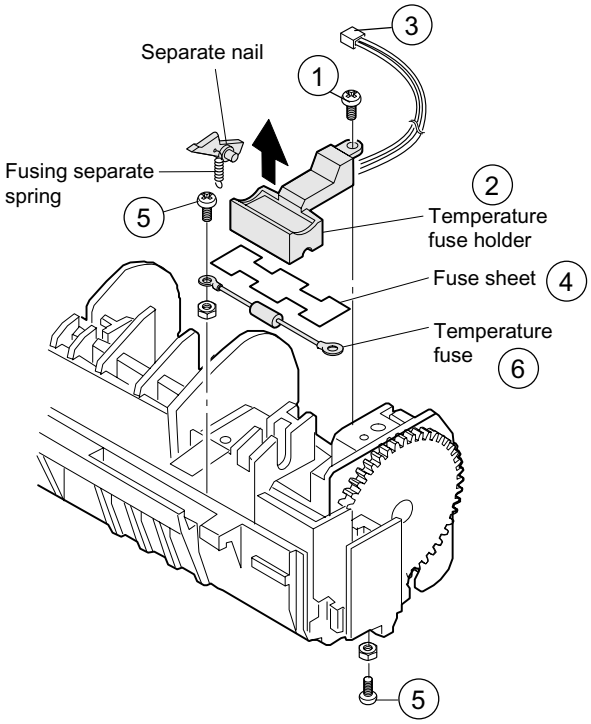


Fig. 30

21. Thermistor

1. Remove one screw, remove the protect of the thermistor cable, and remove the thermistor.

NOTE: Be careful not to mistake the installing direction of the thermistor. Attach so that the thermistor orange cover side is on the front side of the heat roller.

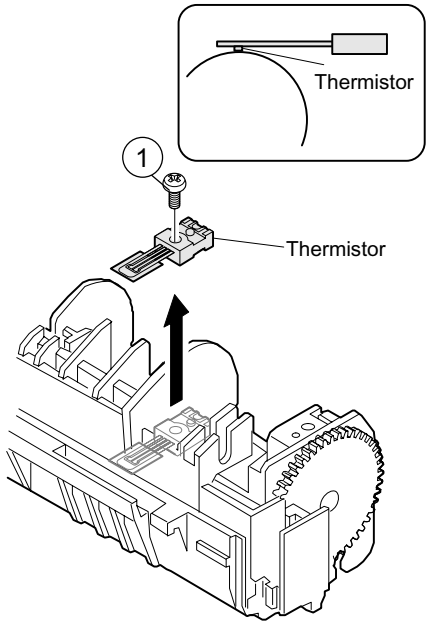


Fig. 31

22. AC connection wire

1. Remove one screw.
2. Remove AC connection wire in the direction of arrow (A).

   At that time, pull out the bent section of AC connection wire from the notch of the fusing cover.

Not for assembly

- When installing the wire, the nut is attached.

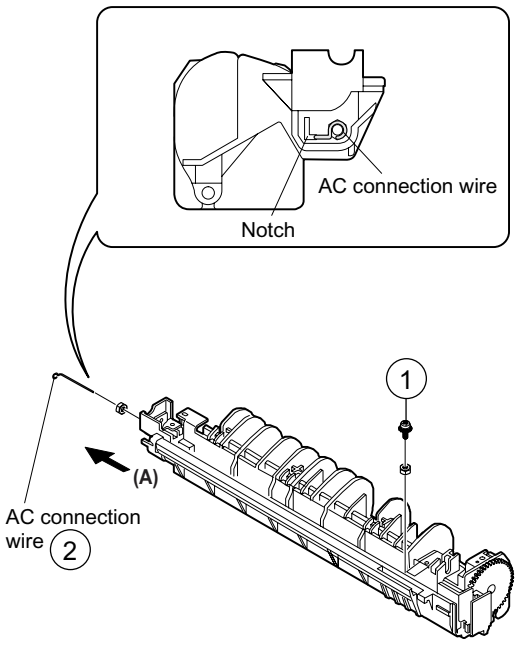
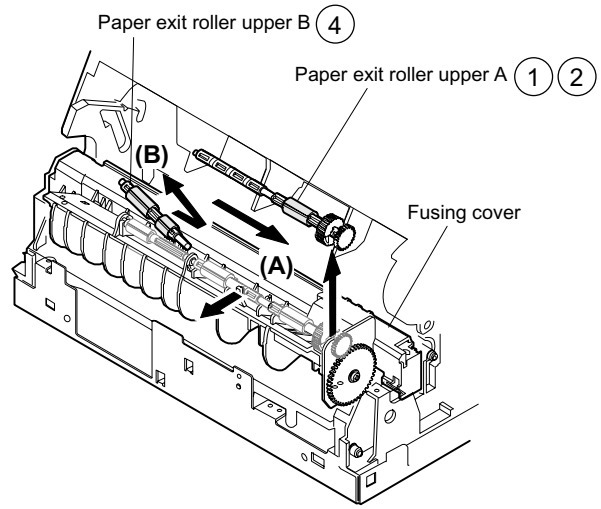
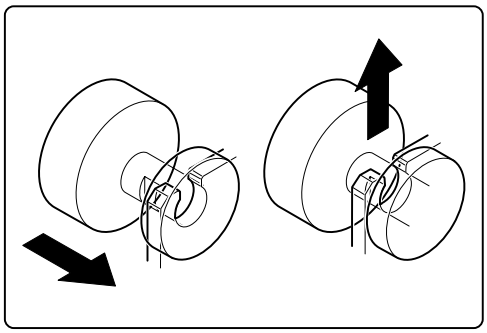


Fig. 32

23. Paper exit roller upper

1. Bend the shaft of paper exit roller upper A, and disengage it from the hook of fusing cover and remove it in the direction of arrow (A).
2. Remove the shaft of paper exit roller upper A from the notch of fusing cover, and remove paper exit roller upper A.
3. Use tweezers to disengage the hook of fusing knob, separate it into two sections, and remove it from paper exit roller upper A.
4. Remove paper exit roller upper B in the direction of arrow (B), and remove it from fusing cover.





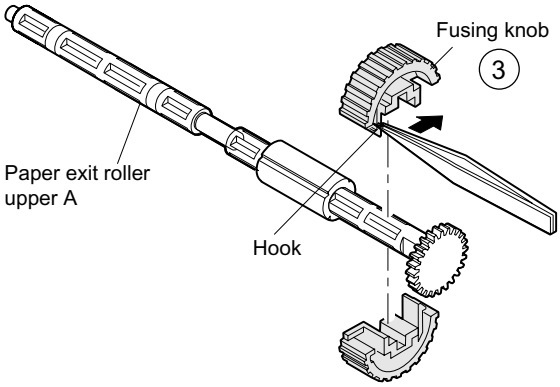


Fig. 33

24. Transfer roller

1. Insert a screwdriver into the bearing installation hole on the non-drive side and remove the bearing.
2. Remove the transfer roller from the main body.

NOTE: When installing the transfer roller, install the pressure springs (2 pcs.). Be careful not to scratch the transfer roller or not to attach foreign materials.

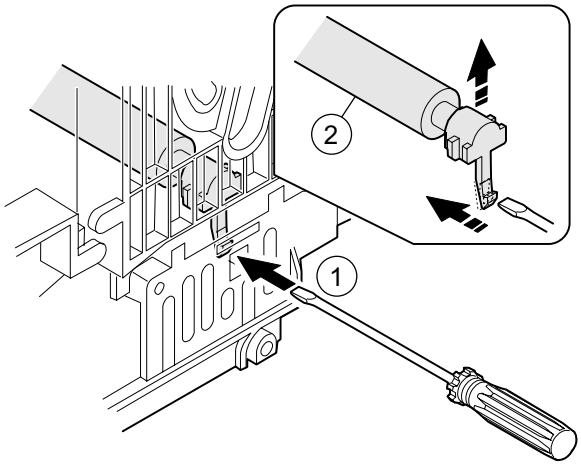


Fig. 34

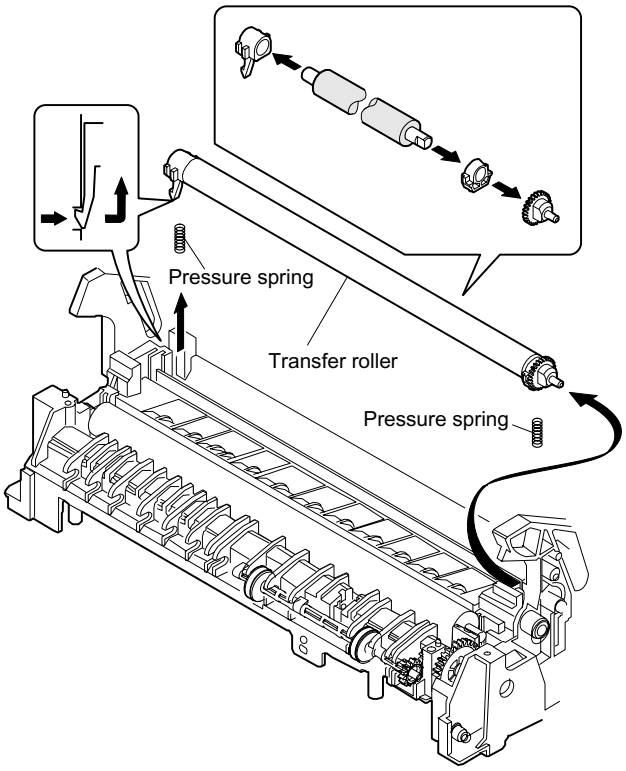


Fig. 35

25. Fusing roller

1. Remove the fusing roller.

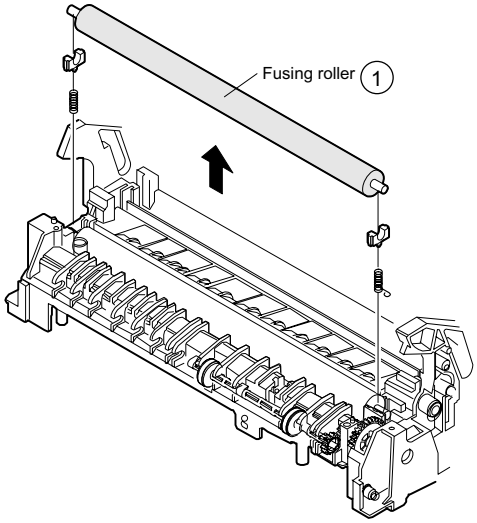


Fig. 36

26. Separation electrode

1. Remove two screws, and remove right fan and fan bracket.
2. Remove three screws, and remove gear plate.

   At that time, fusing clutch gear A and fusing clutch spring are also disassembled.
3. Pull out motor idle gear and remove drum idle gear.
4. Remove earth terminal fixing screw.
5. Slide the earth terminal in the direction of A and remove it from the main body frame.
   - When pulling out the grounding section of separation electrode lastly, the bent section of electrode is caught by the lower frame.

     Therefore, use a screwdriver (–) to hold the electrode section of separation electrode so as not to be caught as follows (Fig. 38).

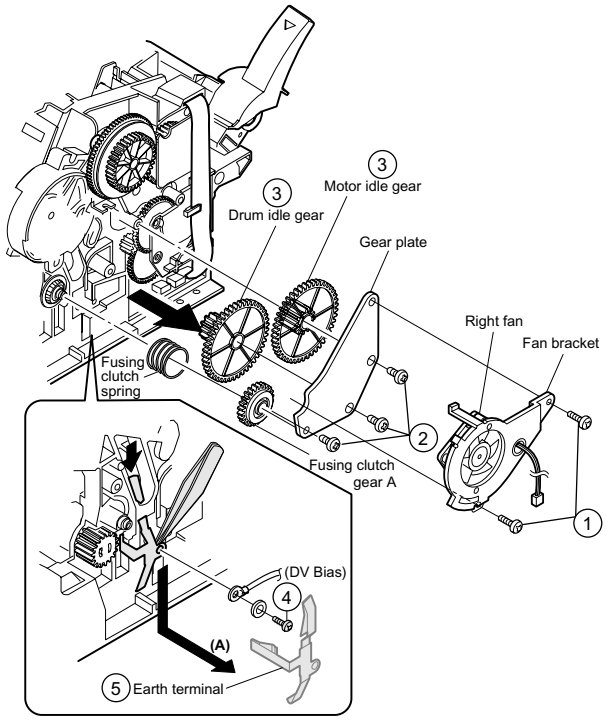


Fig. 37

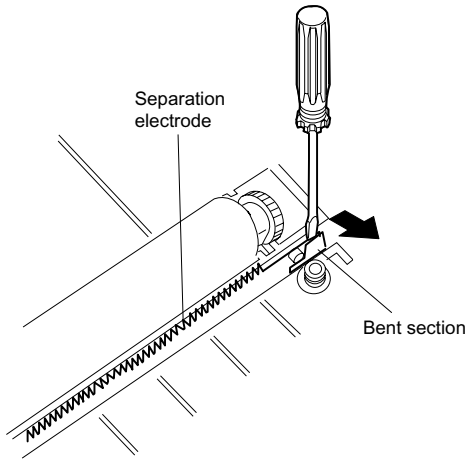


Fig. 38

6. Hold the right side of separation electrode with tweezers and disengage it from the lower frame boss and remove upward as follows.

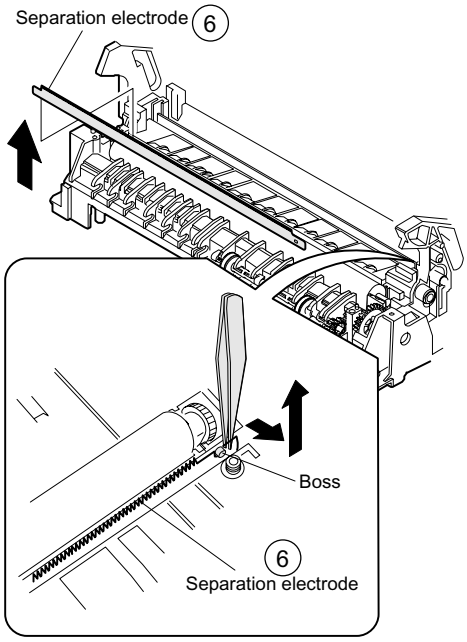


Fig. 39

NOTE: Drum earth electrode so that it is on the terminal on the PWB unit as follows.

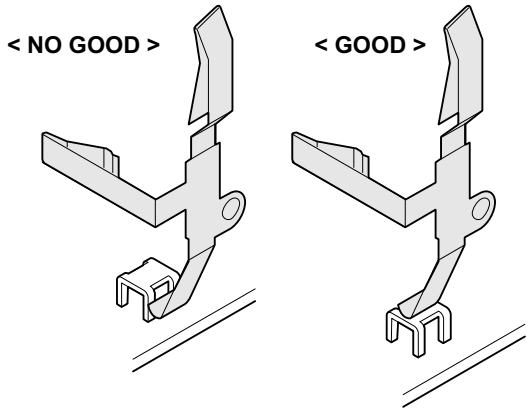


Fig. 40

27. PIN actuator (Paper in detection lever)

1. Turn the PIN actuator and slide the thin section of the shaft in the arrow (A) direction and remove it from the lower frame.

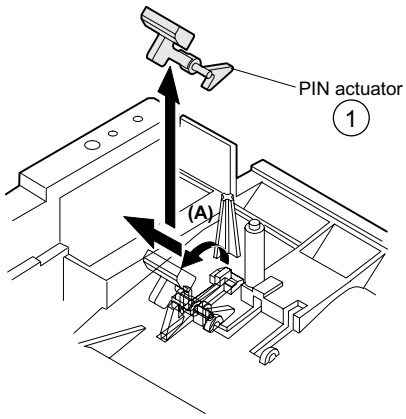


Fig. 41

28. POUT actuator (Paper out detection lever)

1. Turn the POUT actuator and slide the thin section of the shaft in the arrow (A) direction and remove it from the lower frame.

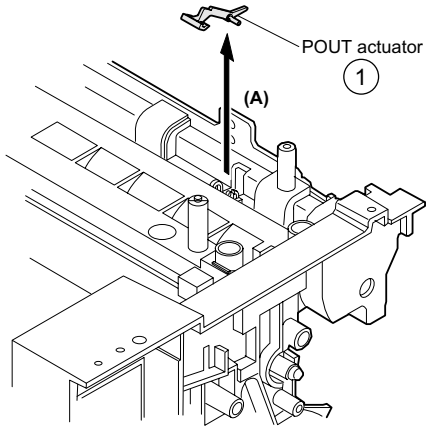


Fig. 42

Note for assembly

- When attaching the PWB unit to the lower frame, put the lower frame upside down. Face the PIN actuators and POUT actuator as shown in the figure below.

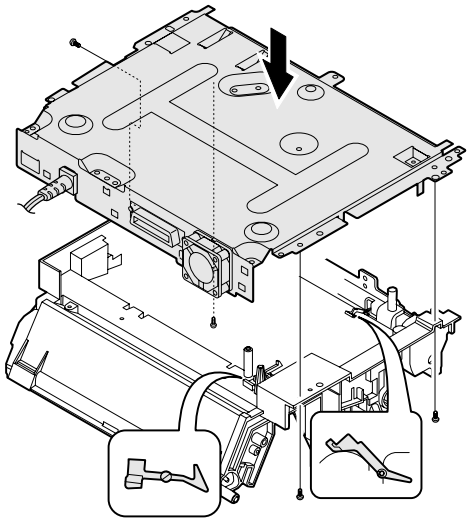


Fig. 43

29. Separate plate ass'y

1. Insert a screwdriver (–) between the separate plate unit arm and the lower frame from the lower frame paper passing side, and drive it in the direction of arrow (A) to remove the temporal fixing stopper and remove the separate plate upward (in the direction of arrow (B)).
2. Pull out the other separate plate ass'y toward you in the same manner.
3. Remove spring, and remove separate plate ass'y.

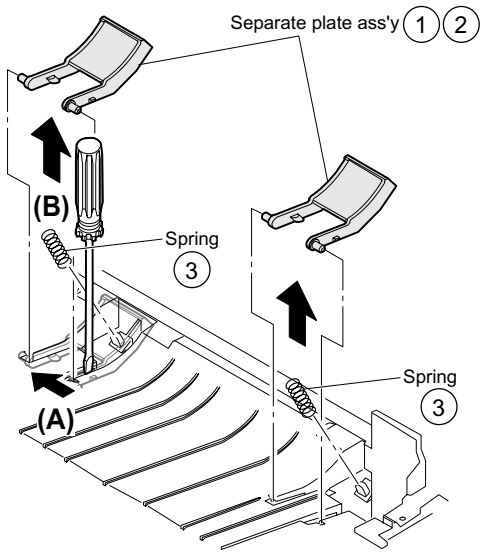


Fig. 44

30. High voltage terminal DR-MC (High voltage terminal:Photoconductor drum main charger)

1. Remove high voltage terminal DR-MC.
   - Terminal cover is included.

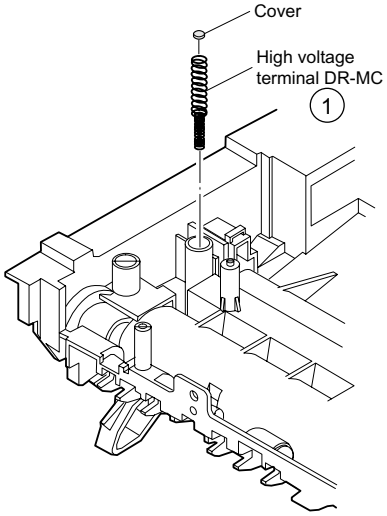


Fig. 45

31. High voltage terminal TC (High voltage terminal:transfer charger)

1. Use tweezers to pick up the projection of high voltage terminal TC, and remove high voltage terminal TC.

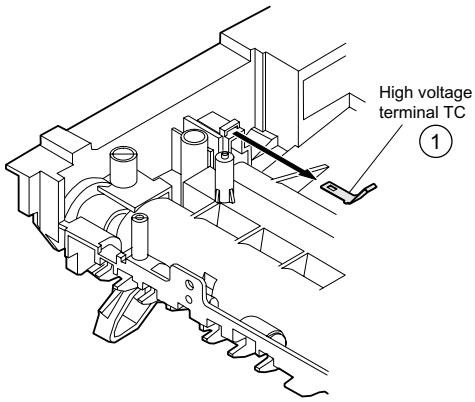


Fig. 46

32. DV bias electrode

1. Remove two screws, and remove fusing gear cover.
2. Remove PU idle gears.

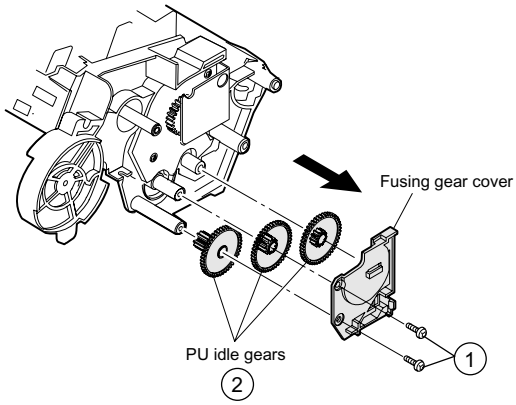


Fig. 47

3. Remove two screws.
4. Remove three screws, and remove gear plate. Then fusing clutch gear A and fusing clutch spring will come off.
5. Pull out motor idle gear.

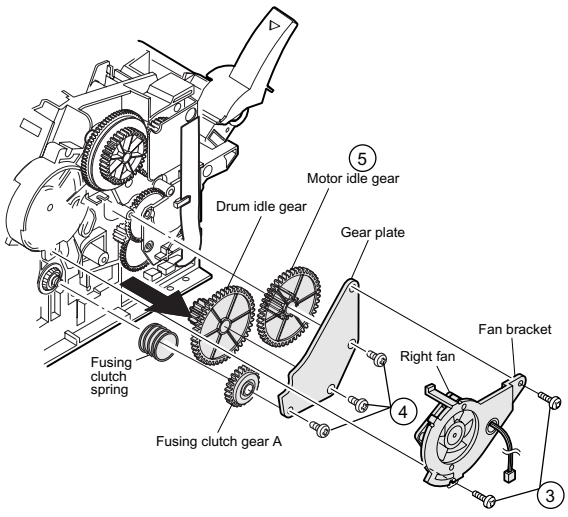


Fig. 48

6. Remove two screws.
7. Pull DV bias electrode toward you, and remove it from the lower frame.

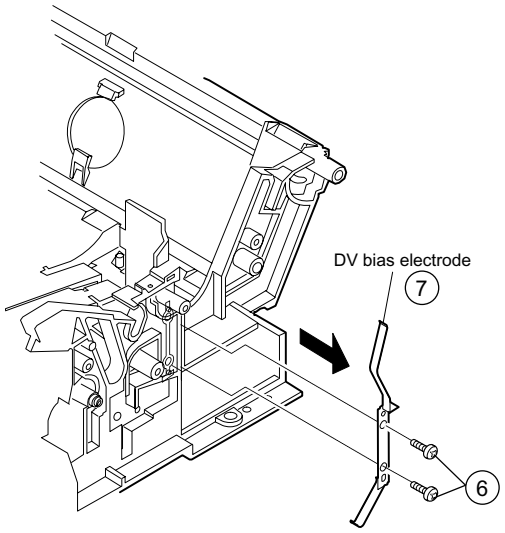


Fig. 49

Note for assembly

- When attaching DV bias electrode, adjust so that the contact is over the DC-bias electrode of the PWB unit.

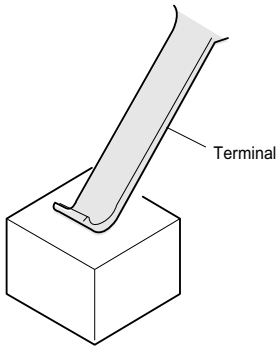


Fig. 50

Note

Fusing section:

- When fixing the cable of the temperature fuse and the thermistor, put it neat inside the projection of the frame.

  If not, paper jams may be resulted.

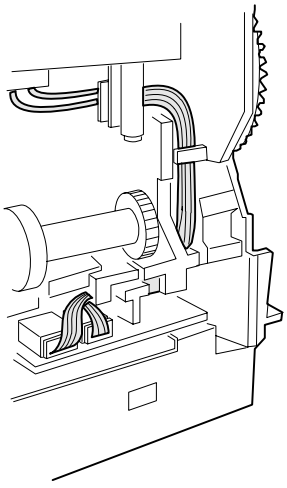


Fig. 51

Optical section:

- Do not touch the mirror fixing screw in the optical section. If touched, the mirror bracket may be change, causing a shift in the print image position or vague images. The mirror angle cannot be adjusted in the market.
- Do not touch the volume attached. If touched, normal images cannot be produced. This adjustment cannot be made in the market.

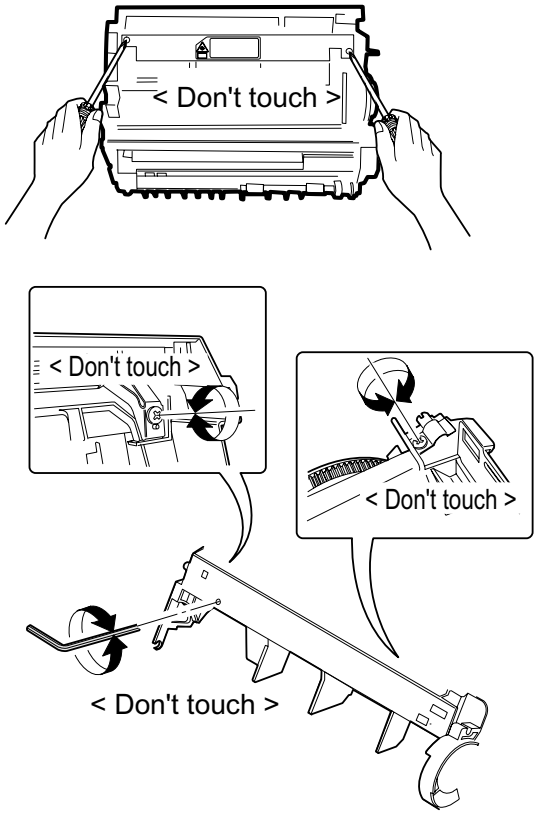


Fig. 52

33. Wire treatment

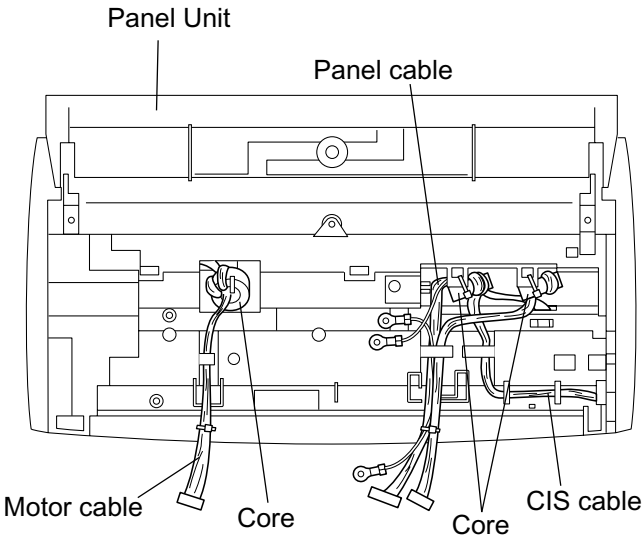
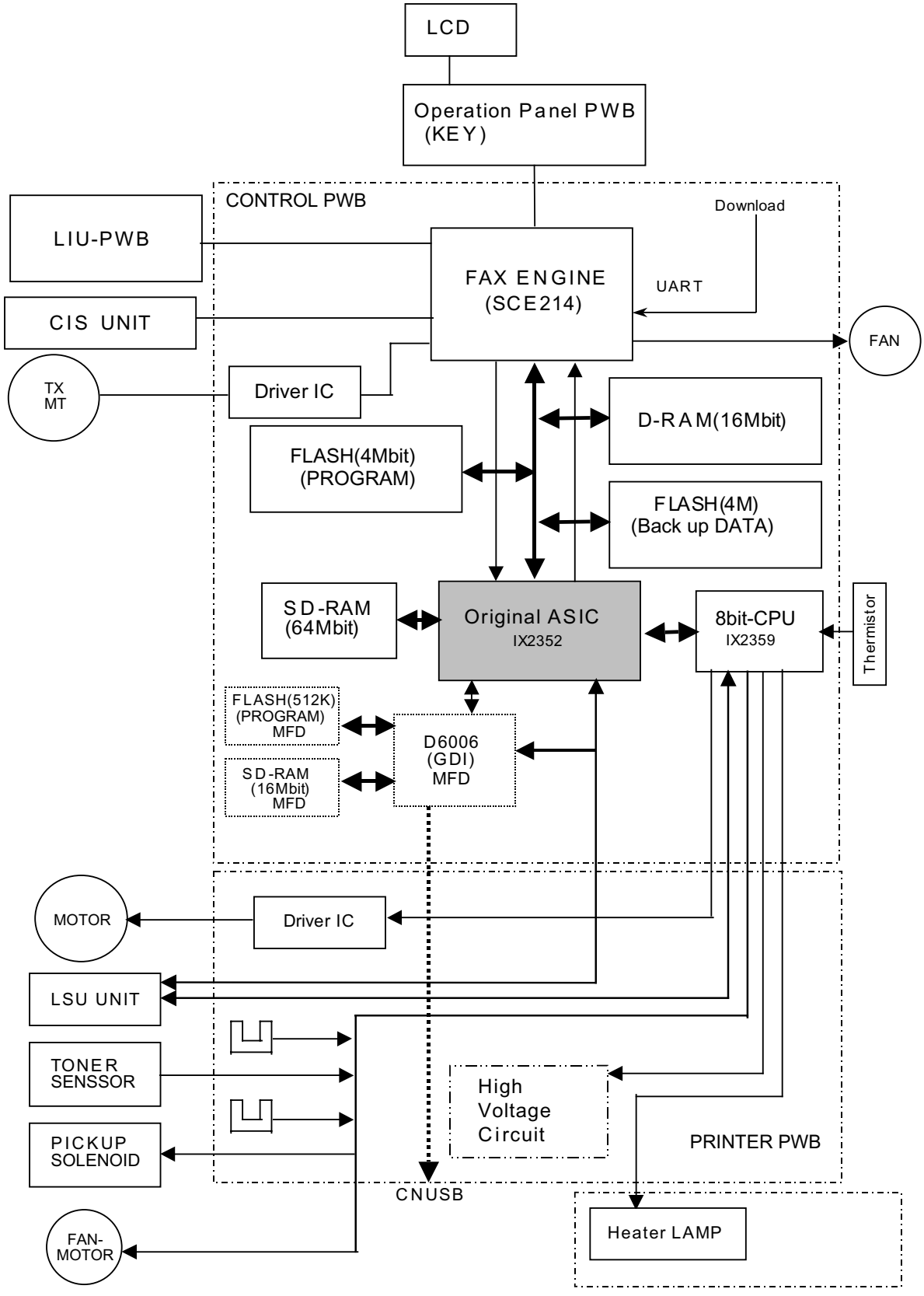


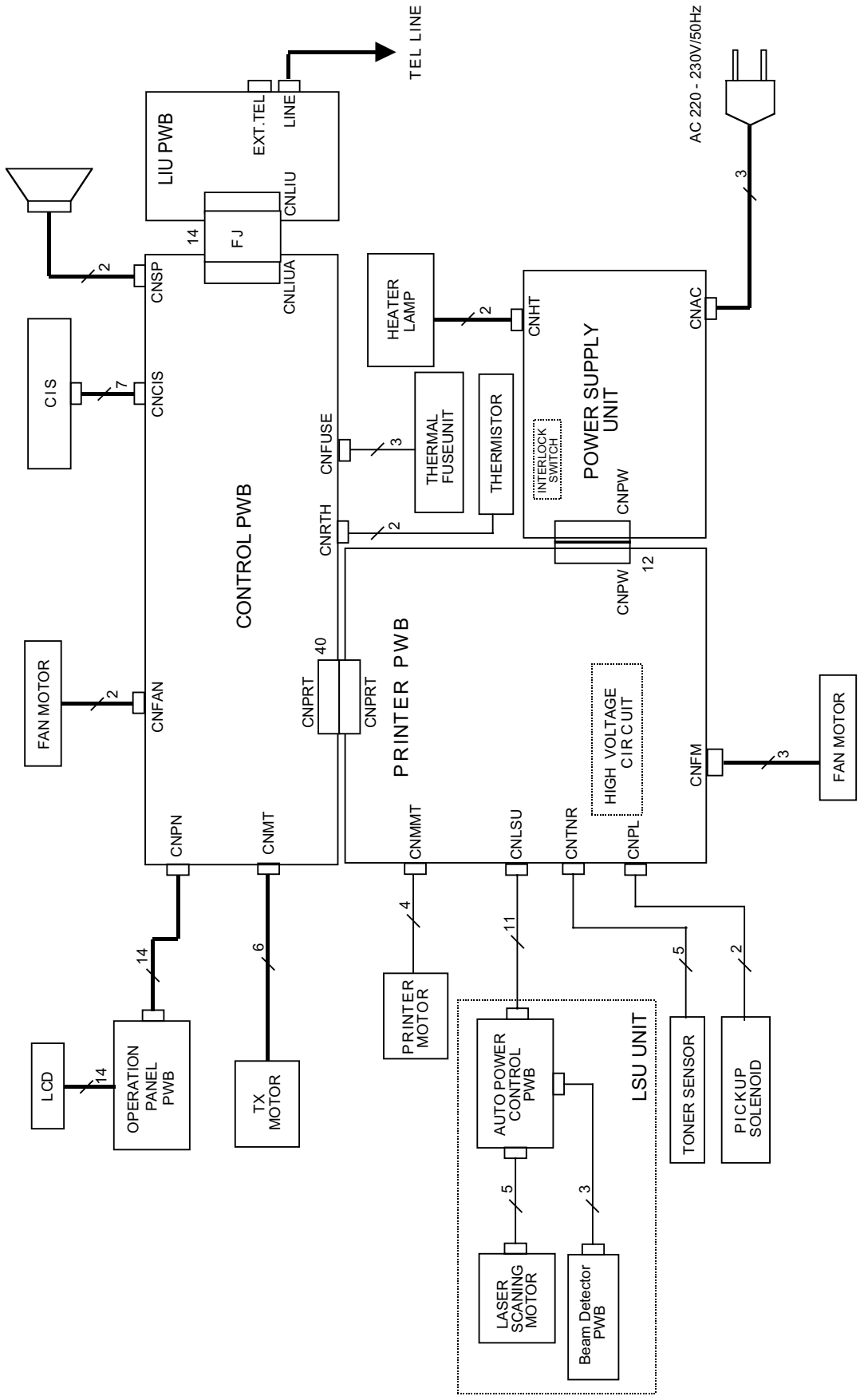
Fig. 53

CHAPTER 4. DIAGRAMS

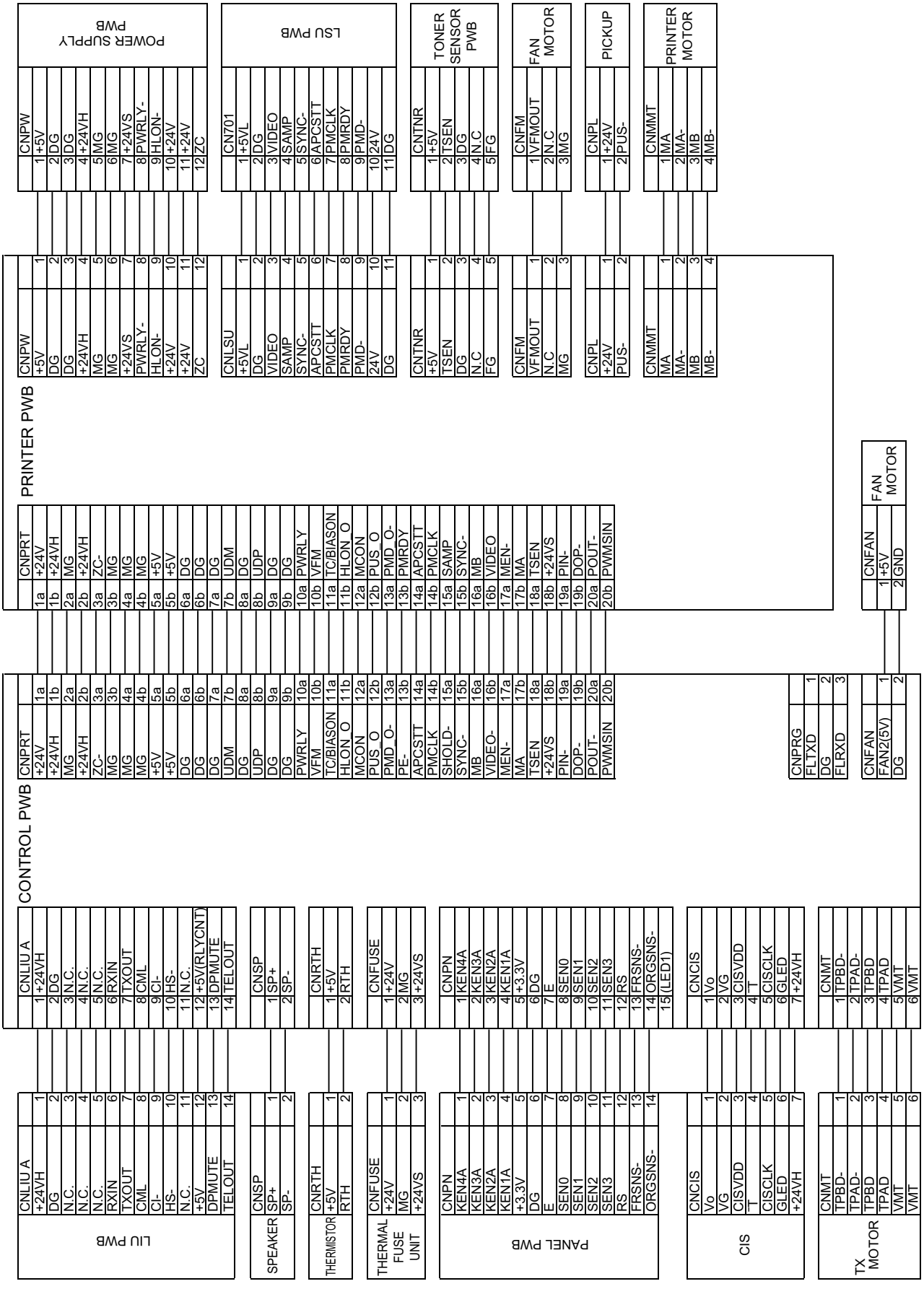
[1] Block diagram



[2] Wiring diagram



[3] Point- to-point diagram and connector signal name



CHAPTER 5. CIRCUIT DESCRIPTION

[1] Circuit description

1. General description

The compact design of the control PWB is obtained by using Risc Processor (CPU) in the main control section and high density printing of surface mounting parts. Each PWB is independent according to its function as shown in Fig. 1.

2. PWB configuration

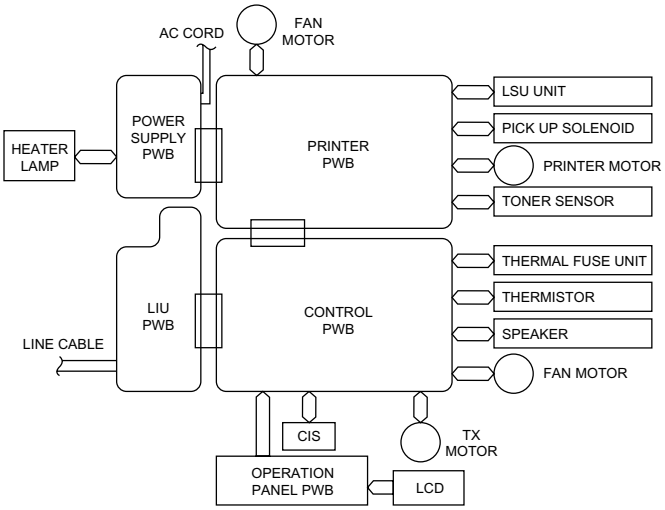


Fig. 1

2.1. Control PWB

The control PWB controls peripheral PWBs, mechanical parts, transmission, and performs overall control of the unit.

This machine employs a 1-chip modem (SCE214) which is installed on the control PWB.

2.2. LIU PWB

This PWB controls connection of the telephone line to the unit.

2.3. Power supply PWB

This PWB provides voltages of +5V and +24V to the another PWB.

2.4. Panel PWB

The panel PWB allows input of the operation keys.

2.5. Printer PWB

This PWB controls the printer mechanical parts.

2.6. LCD PWB

This PWB controls the LCD display.

3. Operation description

Operational descriptions are given below:

- Transmission operation

  When a document is loaded in standby mode, the state of the document sensor is sensed via the SCE214 (IC11).

  If the sensor signal was on, the motor is started to bring the document into the standby position. With depression of the START key in the off-hook state, transmission takes place.

  Then, the procedure is sent out from the modem and the motor is rotated to move the document down to the scan line. In the scan processor, the signal scanned by the CIS is sent to the internal image processor and the AD converter to convert the analog signal into binary data. This binary data is transferred from the scan processor to the image buffer within the RAM and encoded and stored in the transmit buffer of the RAM. The data is then converted from parallel to serial form by the modem where the serial data is modulated and sent onto the line.

- Receive operation

  There are two ways of starting reception, manual and automatic.

  Depression of the START key in the off-hook mode in the case of manual receive mode, or CI signal detection by the LIU in the automatic receive mode.

  First, the SCE214 controls the procedure signals from the modem to be ready to receive data. When the program goes into phase C, the serial data from the modem is converted to parallel form in the modem interface which is stored in the receive buffer of the RAM. The data in the receive buffer is decoded software-wise to reproduce it as binary image data in the image buffer. The data is DMA transferred to the recording processor within the ASIC (IC8) and sent to the LSU on printer PWB.

  CPU (IC9) and ASIC (IC8) control printing data, LSU, main motor, high-voltage circuit, heater control and fan motor.

- Copy operation

  To make a copy on this facsimile, the COPY key is pressed when the machine is in stand-by with a document on the document table and the telephone set is in the on-hook state.

  First, depression of the COPY key advances the document to the scan line. Similar to the transmitting operation, the image signal from the CIS is converted to a binary signal in the DMA mode via the reading processor which is then sent to the image buffer of the RAM. Next, the data is transferred to the ASIC in serial mode to send the image data to the printer PWB in order to print. The copying takes place as the operation is repeated.

[2] Circuit description of control PWB

1. General description

Fig. 2 shows the functional blocks of the control PWB, which is composed of 6 blocks.

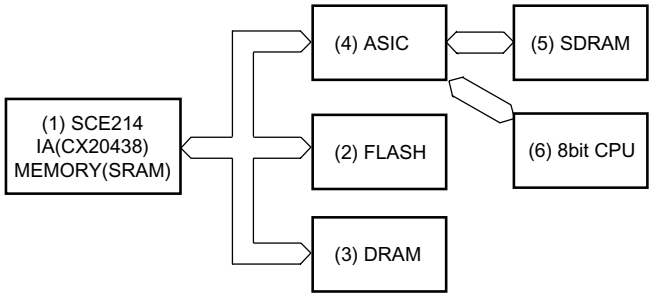


Fig. 2 Control PWB functional block diagram

2. Description of each block

2.1. Main control block

The main control block is composed of CONEXANT 1 chip fax engine (SCE214), FLASH (4Mbit x 2), DRAM (16Mbit), ASIC (µPD65944).

Devices are connected to the bus to control the whole unit.

And this block employs SDRAM (IC7) and 8bit CPU (IC9).

2.1.1 SCE214 (IC11) : pin-176 QFP (FAX CONTROLLER)

1 chip fax engine has internal integrated analog (20438) and internal memory (SRAM : 32kbit).

2.1.2 SST39LF040-45 (IC3): pin-32 TSOP (FLASH)

FLASH of 4Mbit equipped with software for the main CPU.

2.1.3 LH28F400BVE-TL85 (IC5): pin-48 TSOP (FLASH)

FLASH of 4Mbit equipped with MEMORY for registration data.

2.1.4 IS41LV8205 (IC6): pin-28 SOJ (DRAM)

Image memory for recording process.

- Memory for recording pixel data without paper.
- Memory for system work and ECM receive buffer.

2.1.5 µPD65944 (IC8): pin-144 QFP (ASIC)

ASIC between SCE214 and printer unit.

It converts the resolution and the aspect ratio of the serial scanning data sent by SCE214 and sends the converted data to printer unit.

2.1.6 M12L64164A-7T (IC7): pin-54 TSOP (SDRAM)

Dedicated image buffer for ASIC (IC8).

2.1.7 µPD780032A (IC9): pin-64 QFP (8bit CPU)

Printing control with ASIC (IC8).

2.2. IC11 (SCE214) Hardware description

2.2.1 Integrated Controller (SCC)

The Controller contains an internal MC24 Processor with a 16-MB address space and dedicated circuitry optimized for facsimile image processing and monitoring and for thermal or thermal transfer printer support.

The CPU provides fast instruction (up to 10 MHz clock speed) execution and memory efficient input/output bit manipulation. The CPU connects to other internal functions over an 8-bit data bus and 24-bit address bus and dedicated control lines.

The 24-bit external address bus, 8-bit data bus, control, status and decoded chip select signals support connection to external DRAM, and FLASH memory.

2.2.2 DRAM Controller

The CX06835 includes a DRAM controller with signal and page mode access support which supports fast, normal, or slow refresh time. DRAM memory space is provided in one block up to 4 MB. A maximum of 4 MB of DRAM is supported. This space has a programmable size and starting address. Refresh is performed automatically and is supported in stand-by mode. CAS and RAS signal support is provided for one-DRAM banks for both 4-bit and 8-bit organizations. Access speeds from 50ns to 70ns can be supported.

2.2.3 DMA Channels

Six internal DMA channels support memory access for scanner, T.4/T.6, and resolution conversion. DMA Channel 2 can be reprogrammed for external access to thermal printing, thermal transfer, or plain paper inkjet printing.

2.2.4 External RAM and ROM

Moveable and programmable size external SRAM memory of up to 1 MB, DRAM memory of up to 4 MB, and ROM of up to 2 MB can be directly connected to the SCE214. By using an external address decoder, the size of SRAM and/or ROM can be extended. The ROM stores all the program object code.

2.2.5 Flash Memory Controller

The SCE214 includes a flash memory controller that supports NOR, NAND, and Serial NAND-type flash memory. The supported size of NOR-type memory is up to 1 MB and the supported size of NAND-type memory is unlimited.

2.2.6 Stepper Motor Control

Eight outputs are provided to external current drivers: four to the scanner motor and four to the printer motor. The stepping patterns are programmable and selectable line times are supported. A timeout circuit controls the power control of the motors. The printer or scanner motor outputs can be programmed as GPOs for applications using single motor or paper printers.

2.2.7 T.4/T.6 Compressor/Decompressor

MH, MR and MMR compression and decompression are provided in hardware. T.4 line lengths of up to 8192 pixels are supported. MMR and Alternating Compression/Decompression (ACD) on a line by line basis provide support for up to three independent compression and decompression processes.

2.2.8 Bi-level Resolution Conversion

One independent programmable bi-level 1D-resolution conversion block is provided to perform expansion or reduction on the T.4 decompressed data and scan image data. Image expansion can be programmed up to 200% and reduction down to 33%. Vertical line ORing and data output bit order reversal is also provided.

2.2.9 Printer IF

The Printer Interface provides a standard connection between the SCE214 and a thermal printhead to support thermal printing or thermal transfer. The thermal printer interface consists of programmable data, latch, clock, and up to four strobe signals. Programmable timing supports traditional thermal printers, as well as the latchless split mode printers, and line lengths of up to 2048 pixels. Line times from 5 ms to 40 ms are supported.

The SCE214 includes a thermal ADC (TADC) function utilizing a D/A converter and a comparator to monitor the printhead temperature. External terminating resistors must be supplied; the values are determined by the specific printhead selected.

As an option, plain paper inkjet printing can be supported.

2.2.10 Scanner and Video Control

Five programmable control and timing signals support common CCD and CIS scanners. The video control function provides signals for controlling the scanner and for processing its video output. Three programmable control signals (START, CLK1n, and CLK2) provide timing related to line and pixel timing. These are programmable with regard to start time, relative delay and pulse width.

Two video control output signals (VIDCTL[1:0]) provide digital control for external signal pre-processing circuitry. These signals provide a per pixel period, or per line period, timing with programmable polarity control for each signal.

2.2.11 Video Processing

The CX06835 supports two modes of shading correction for scanner data non-uniformity arising from uneven sensor output or uneven illumination. Corrections are provided on either an 8-pixel group or are applied separately to each pixel. Dark level correction and gamma correction are also provided.

Two-dimensional Error Diffusion/Dithering is performed on halftone images.

The CX06835 includes an 8 x 8 dither table, which is programmable and stored internally (8-bit per table entry). The table is arranged in a matrix of 8 rows by 8 columns. The video processing circuit provides mixed-mode detection/processing and multi-level Resolution Conversion for the scanner multi-level data. The conversion ratio of the multi-level Resolution Conversion is fixed to B4-A4 conversion.

2.2.12 Operator Panel Interface

Operation Panel functions are supported by the operator output bus OPO[6:0], the operator input bus OP[3:0], and two control outputs (LCDCS and LEDCTRL).

The CX06835 can directly interface to a 28-key keypad.

A 2-line LCD display module with 20 characters per line can be supported.

2.2.13 Synchronous Serial Interface (SSIF)

One or optionally two Synchronous only Serial Interfaces (SSIF) are built into the CX06835, which allows it to communicate with external peripherals. Each SSIF provides separate signals for Data (SSTXD, SSRXD), Clock (SSCLK), and Status (SSSTAT). Each SSIF is a duplex, three-wire system. The SSIF may be configured to operate as either a master or a slave interface. The bit rate, clock polarity, clock phase, and data shifting order are programmable.

2.2.14 Synchronous/Asynchronous Serial Interface (SASIF)

One or optionally two Synchronous/Asynchronous Serial Interface (SASIF) performs the following:

- Serial-parallel conversion of data received from a peripheral device.
- Parallel-to-serial conversion of data for transmission to a peripheral device.

This interface consists of serial transmit data (SASTXD), serial receive data (SASRXD), and a serial clock (SASCLK). The SASIF includes a programmable bit rate generator for asynchronous and synchronous operations. The data shifting order, data bit number, and the SASCLK polarity are programmable.

The optional SASIF 2 has an additional pin called DSS_AVAIL. This signal can be used to tristate the SASCLK2 and SASTXD2 signals.

2.2.15 Real Time Clock (RTC)

The CX06835 includes a battery backup real time clock. The RTC will automatically maintain the proper date and time for 32 years. Leap year compensation is included. A 32.768 kHz or 65.536 kHz crystal is required by the RTC.

2.2.16 Tone Generator (ALT_TONE)

The CX06835 provides a programmable tone generator output. The frequency of the tone generator is programmable from 400 Hz to 4 kHz. By using a PWM programmable high frequency as a modulation frequency, the output level can be made programmable.

2.2.17 Watchdog Timer

The Programmable Watchdog Timer is intended to guard against firmware lockup on the part of either executive-controlled background tasks or interrupt-driven tasks, and can only be enabled by a sequence of events under control of the Watchdog Control Logic. Once the Watchdog Timer has been enabled, it can not be disabled unless a system reset occurs.

2.2.18 Reset and Power Control

The RESETn I/O pin provides an internally generated reset output to external circuits, or it can accept an externally generated reset signal. This reset signal will not reset the RTC. Separate RTC battery power inputs are provided for battery-backup functions. A BATRSTn pin is provided, which resets the RTC circuits and other SCC circuits.

2.2.19 Power Up/Down Control

Power Up/Down detection is provided internally. The threshold voltages are:

- Power Up detection level = 2.83V to 2.95V.

An internally generated power down signal controls internal switching between primary and battery power. This control signal is also provided as an output on the PWRDWNn pin. An externally generated power down detector (optional) can be provided as an input on the PWRDWNn pin by setting the INTPWRDWNEn pin.

2.2.20 Stand-by and Sleep Modes

Two power saving modes are provided to reduce the power consumption. In stand-by mode, the CPU is functional, but the modem clock is turned off to save power. When this occurs, the modem may be activated by software under different conditions. In sleep mode, the clock is cut off from both the modem and the CPU to increase the power savings.

The system can be activated by paper insertion, key pressing events, and telephone ring detection.

2.2.21 Embedded Modem DSP

The embedded modem DSP is a synchronous 9600 bps half-duplex modem with error detection and DTMF generation/reception. It provides data transmission/reception from regular PSTN lines, PBX, or private lines.

The modem can operate at any standard V.29 data speed up to 9600 bps as well as in V.21 and V.23 modes.

The modem can operate at any standard V.29 data speed up to 9600 bps as well as in V.21 and V.23 modes.

The modem is designed for use in Group 3 facsimile machines. It satisfies the requirements specified in ITU-T recommendations V.29, V.27ter, V.21 Channel 2, and T.4, and meets the signaling requirements of T.30. It also performs HDLC framing according to T.30 at all speeds.

NOTE: For technical details, refer to the FM209/FM214 Designer's Guide, (document 1175).

2.2.22 Software and Firmware Support Features

Available software and embedded firmware provides the following:

- Modem support for speeds up to 9600 bps.
- ECM under conditional assembly.
- DRAM memory support under conditional assembly.
- MH, MR and MMR support.
- Page memory receiving.
- 5ms minimum scan line time.
- Conditional Error Diffusion or Dither table (8x8) support.
- Dark Level Correction support.
- Single motor support.
- 28-key operator panel support.
- Call progress support for Europe and U.S.A.
- Monochrome inkjet print engine support.

SCE214 (IC11) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
1	VDDPLL	—	—	—	PLL Power
2	VSSPLL	—	—	—	PLL GND
3	ROMCSn	O	—	13Xs	—
4	SYNC/GPO[20]	O	—	13Xs	—
5	WRn	O	—	13Xs	—
6	RDn	O	—	13Xs	—
7	DEBUGn	I	Hu	—	—
8	TSTCLK	O	—	13Xs	—
9	VSS	—	—	—	Digital GND
10	SXIN	I	Osc0	—	—
11	SXOUT	O	—	Osc0	—
12	OPO[0]/GPO[8]/SMPWRCTRL	O	—	13Xs	—
13	OPO[1]/GPO[9]/PMPWRCTRL	O	—	13Xs	—
14	OPO[2]/GPO[10]/RINGER	OZ	—	13Xs	—
15	OPO[3]/GPO[11]	O	—	13Xs	—
16	OPO[4]/GPO[12]/SSTXD1	O	—	13Xs	—
17	OPO[5]/GPO[13]	O	—	13Xs	—
18	OPO[6]/GPO[14]	O	—	13Xs	—
19	OPI[0]/GPIO[21]/SSRXD1	I/O	Hu	13Xs	—
20	OPI[1]/GPIO[22]/SSSTAT1	I/O	Hu	13Xs	—
21	OPI[2]/GPIO[23]/SSCLK1	I/O	Hu	13Xs	—
22	OPI[3]/GPIO[24]	I/O	Hu	13Xs	—
23	LCDCS/GPO[17]	O	—	1XC	—
24	VDD	—	—	—	Digital Power
25	RASn	O	—	13Xs	—
26	CAS[0]n	O	—	13Xs	—
27	DWRn	O	—	13Xs	—
28	VBAT	—	—	—	RTC Battery Power
29	XIN	I	Osc1	—	—
30	XOUT	O	—	Osc1	—
31	WRPROTn	O	—	1XC	—
32	TEST[1]	I	Hd	—	—
33	TEST[0]	I	Hd	—	—
34	BATRSTn	I	H	—	—
35	INTPWRDWNEn	I	H	—	—
36	PWRDWNn	I/O	H	13Xs	—
37	N.C.	—	—	—	—
38	ADGA	—	VADG	—	PADC Analog GND
39	VREFn/CLREF	I	VR-	—	PADC
40	VIN	I	VA	—	PADC
41	ADGA	—	VADG	—	PADC Analog GND
42	ADVA	—	VADV	—	PADC Analog Power
43	ADXG	—	VXG	—	PADC
44	VREFp	I	VR	—	PADC
45	VSS	—	—	—	VSS Digital GND
46	IVREFn	O	—	VR-	PADC
47	IVREFp	O	—	VR+	PADC
48	VDD	—	—	—	Digital Power
49	THADI	I	Analog	—	TADC
50	VSS	—	—	—	Digital GND
51	GPIO[17]/DSPIRQn	I/O	Hu	13Xs	—
52	GPIO[16]/IRQ[8]	I/O	Hu	13Xs	—
53	GPIO[15]/CS[5]n	I/O	Hu	13Xs	—
54	GPIO[13]/CS[3]n	I/O	Hu	13Xs	—
55	GPIO[37]/IRQ15n/DSPCSn	I	Hu	13Xs	—
56	GPIO[4]/CPCIN/TPHPWRCTRL/DMAREQ	I/O	Hu	13Xs	—
57	STRB[0]	O	—	1XC	—
58	STRB[1]	O	—	1XC	—
59	STRB[2]	O	—	1XC	—
60	STRB[3]	O	—	1XC	—
61	PLAT	O	—	3XC	—
62	PDAT	O	—	2XC	—
63	PCLK/DMAACK	O	—	3XC	—

SCE214 (IC11) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
64	VDD	—	—	—	Digital Power
65	GPIO[11]/BE/SERINP/SR4IN	I/O	Hu	13Xs	—
66	GPIO[19]/RDY/SEROUT	I/O	Hu	13Xs	—
67	START	O	—	2XC	—
68	CLK1n/GPO[25]	O	—	13Xs	—
69	CLK2/GPO[24]	O	—	13Xs	—
70	GND	—	—	—	IA GND
71	MCLK	ID	—	—	Main Clock from DSP
72	CTRLI	ID	d	—	Control Data from DSP
73	TESTC	ID	d	—	IA Test
74	SOUT	OD	—	T	Serial Data to DSP
75	SIN	ID	d	—	Serial Data to DSP
76	FSYNC	I/OD	d	—	Frame Sync Signal (IA)
77	POR	IA	d	—	Hardware Reset
78	GND	—	—	—	IA GND
79	LINE_INP	IA	—	—	Analog Input to Line Pre-Amp.
80	MIC_INP	IA	—	—	Positive differential Analog Input to Microphone Pre-Amp.
81	MIC_INM	IA	—	—	Negative differential Analog Input to Microphone Pre-Amp.
82	MIC_BIAS	OA	—	—	2.2 V Nominal DC Bias Source for Electret Microphone
83	BG	OA	—	—	Analog reference Voltage Output
84	VC	OA	—	—	Analog Ground Bias Output
85	AVDD	PWR	—	—	IA Analog Power
86	GND	—	—	—	IA GND
87	LINE_OUTP	OA	—	—	Line Driver Output
88	SPKR_OUTP	OA	—	—	Positive Speaker Driver Output
89	SPKR_OUTM	OA	—	—	Negative Speaker Driver Output
90	DVDD	PWD	—	—	IA Digital Power
91	MODE_0	ID	u	—	Connect to VSS (IA Mode Selection)
92	ICLK	I/OD	—	—	IA Bit Clock Input/Output
93	VSS	—	—	—	VSS Digital GND
94	FCSn[1]/VIDCTL[0]/GPO[23]	O	—	13Xs	—
95	IARESET	O	—	13Xs	DSP to EXTIA POR
96	IACLK	O	—	13Xs	DSP to EXTIA MCLK
97	VDD	—	—	—	Digital Power
98	IA1CLK	I	H	—	DSP from EXTIA ICLK
99	SR3IN/DSPIRQn	I	H	—	DSP from primary EXTIA SOUT/EXT. Modem IRQn
100	SR4OUT	O	—	13Xs	DSP to primary EXTIA SIN
101	SR1IO	O	—	13Xs	DSP to EXTIA CTRL1
102	SA1CLK	I	H	—	DSP from EXTIA FSYNC
103	GPIO[7]/SSRXD2/SASRXD2	I/O	Hu	13Xs	—
104	GPIO[6]/SSTXD2/SASTXD2	I/O	Hu	13Xs	—
105	GPIO[5]/SSCLK2/SASCLK2	I/O	Hu	13Xs	—
106	GPIO[10]/SSSTAT2/DSS_AVAIL	I/O	Hu	13Xs	—
107	VSS	—	—	—	Digital GND
108	RESETn	I/O	Hu	2XC	—
109	GPIO[3]/SASCLK	I/O	Hu	13Xs	—
110	GPIO[2]/SASRXD	I/O	Hu	13Xs	—
111	GPIO[1]/SASTXD	I/O	Hu	13Xs	—
112	GPIO[9]/FRDn	I/O	Hu	13Xs	—
113	GPIO[8]/FWRn	I/O	Hu	13Xs	—
114	A[0]	I/O	Tu	13Xs	CPU Address Bus
115	A[1]	I/O	Tu	13Xs	CPU Address Bus
116	A[2]	I/O	Tu	13Xs	CPU Address Bus
117	A[3]	I/O	Tu	13Xs	CPU Address Bus
118	A[4]	I/O	Tu	13Xs	CPU Address Bus
119	VDD	—	—	—	Digital power
120	A[5]	I/O	Tu	13Xs	CPU Address Bus
121	A[6]	I/O	Tu	13Xs	CPU Address Bus
122	A[7]	I/O	Tu	13Xs	CPU Address Bus
123	A[8]	I/O	Tu	13Xs	CPU Address Bus
124	A[9]	I/O	Tu	13Xs	CPU Address Bus
125	A[10]	I/O	Tu	13Xs	CPU Address Bus

SCE214 (IC11) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
126	A[11]	I/O	Tu	13Xs	CPU Address Bus
127	A[12]	I/O	Tu	13Xs	CPU Address Bus
128	A[13]	I/O	Tu	13Xs	CPU Address Bus
129	A[14]	I/O	Tu	13Xs	CPU Address Bus
130	A[15]	I/O	Tu	13Xs	CPU Address Bus
131	A[16]	I/O	Tu	13Xs	CPU Address Bus
132	VDD	—	—	—	Digital Power
133	VSS	—	—	—	Digital GND
134	A[17]	I/O	Tu	13Xs	CPU Address Bus
135	A[18]	I/O	Tu	13Xs	CPU Address Bus
136	A[19]	I/O	Tu	13Xs	CPU Address Bus
137	A[20]	I/O	Tu	13Xs	CPU Address Bus
138	A[21]/EYECLK	I/O	Tu	13Xs	CPU Address Bus
139	A[22]/EYESYNC	I/O	Tu	13Xs	CPU Address Bus
140	A[23]/EYEXY	I/O	Tu	13Xs	CPU Address Bus
141	D[0]	I/O	Tu	13Xs	CPU Data Bus
142	D[1]	I/O	Tu	13Xs	CPU Data Bus
143	D[2]	I/O	Tu	13Xs	CPU Data Bus
144	D[3]	I/O	Tu	13Xs	CPU Data Bus
145	D[4]	I/O	Tu	13Xs	CPU Data Bus
146	D[5]	I/O	Tu	13Xs	CPU Data Bus
147	D[6]	I/O	Tu	13Xs	CPU Data Bus
148	D[7]	I/O	Tu	13Xs	CPU Data Bus
149	GPIO[20]/ALTTONE	I/O	Hu	13Xs	—
150	GPIO[26]	I/O	Hu	13Xs	—
151	GPIO[27]	I/O	Hu	13Xs	—
152	GPIO[28]	I/O	Hu	13Xs	—
153	GPO[26]	O	—	13Xs	—
154	GPO[27]	O	—	13Xs	—
155	GPO[28]	O	—	13Xs	—
156	GPO[29]	O	—	13Xs	—
157	GPO[30]/SR3OUT	O	—	13Xs	—
158	GPIO[29]	I/O	Hu	13Xs	—
159	GPIO[31]	I/O	Hu	13Xs	—
160	GPIO[32]	I/O	Hu	13Xs	—
161	VDD	—	—	—	Digital power
162	GPIO[34]	I/O	Hu	13Xs	—
163	GPIO[35]	I/O	Hu	13Xs	—
164	GPIO[36]	I/O	Hu	13Xs	—
165	Vss	—	—	—	Digital GND
166	VDD	—	—	—	Digital Power
167	PM[0]/GPO[0]	O	—	13Xs	—
168	PM[1]/GPO[1]	O	—	13Xs	—
169	PM[2]/GPO[2]	O	—	13Xs	—
170	PM[3]/GPO[3]	O	—	13Xs	—
171	SM[0]/GPO[4]	O	—	13Xs	—
172	SM[1]/GPO[5]	O	—	13Xs	—
173	SM[2]/GPO[6]	O	—	13Xs	—
174	SM[3]/GPO[7]	O	—	13Xs	—
175	REGDMA/GPO[18]/CLKDIV[0]	I/O	T	13Xs	—
176	WAITn/GPO[19]/CLKDIV[1]	I/O	T	13Xs	—

2.3. Panel control description

The following controls are performed by the SCE214.

- Operation panel key scanning
- Operation panel LCD display

2.4. Signal connection block

- Main control block diagram

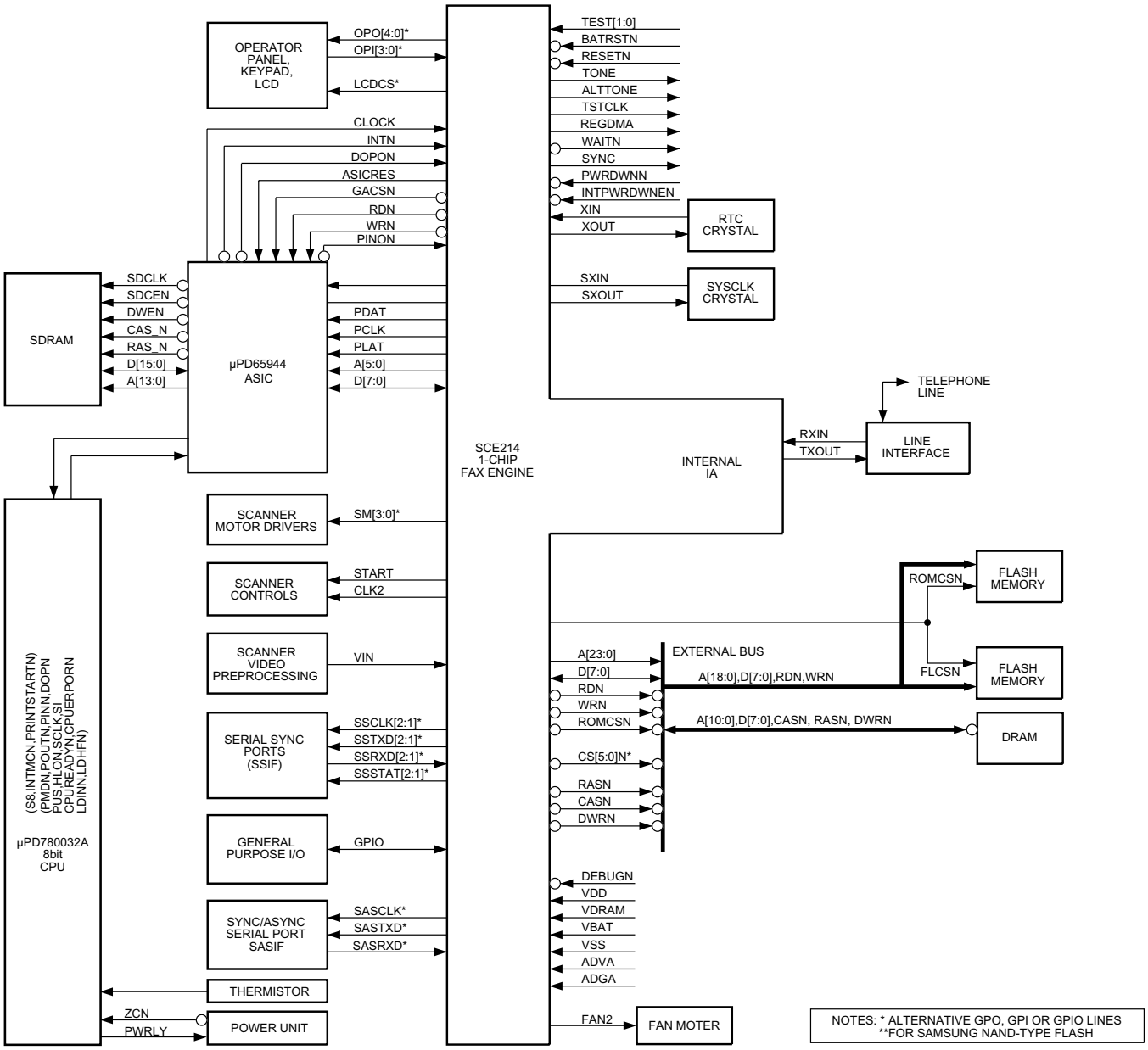


Fig. 3

- Mechanism/Recording control block

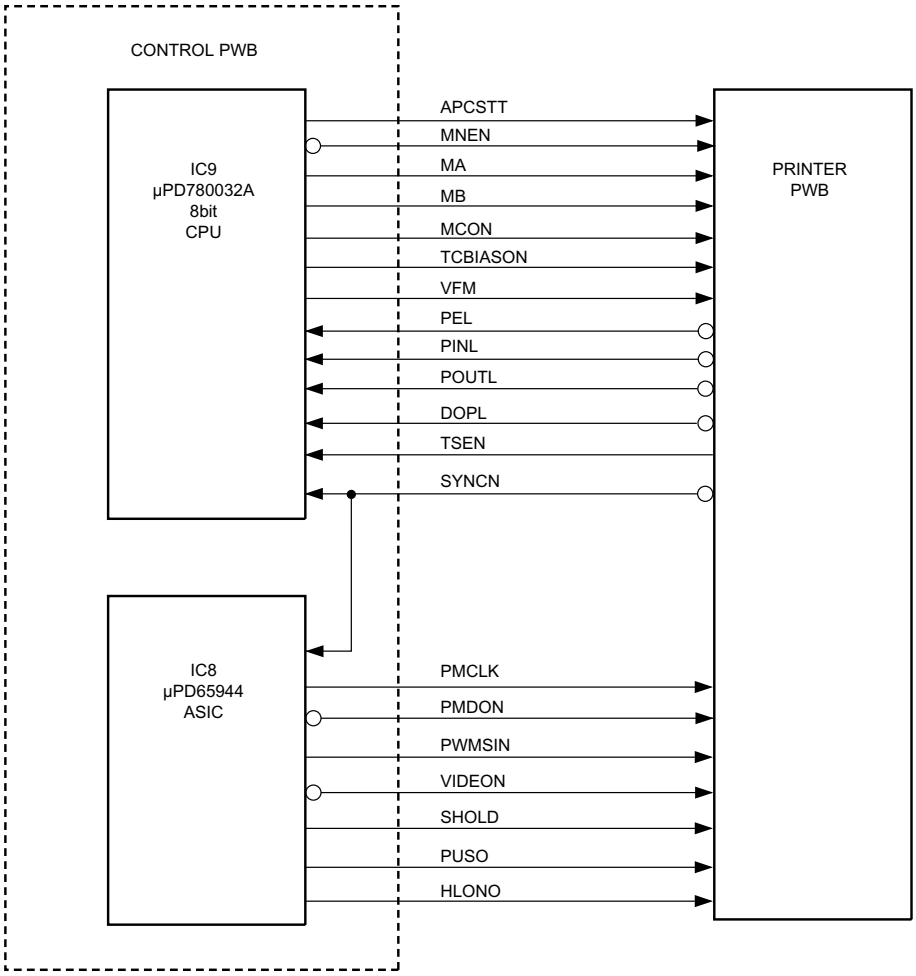


Fig. 4

2.5. Modem block (CX20438)

Integrated Analog Control Resisters for CX20438

The CX20438 IA can be used as a Primary Integrated Analog (PIA) codec or as a Secondary Integrated Analog (SIA) codec, depending on the signal connection with the SCE Controller ASIC device. In the SCE100 product, both the PIA and the SIA are packaged external to the SCE Controller device, whereas in the SCE209, the PIA is packaged with the SCE209 Controller and the SIA is external.

The CX20438 IA provides gain, filtering, internal analog switching, and an internally sourced microphone bias output. The IA is controlled by three control registers and an address register located in internal RAM space which are accessed via the modem interface memory. These registers provide individual controls for the IA's inputs, outputs, gain settings, and switching.

The registers are located in internal DSP RAM. Each bit of each 8-bit IA control register has exactly the same meaning for the PIA and the SIA. The LSB of each 16-bit address contents is used to control the PIA. The MSB of each 16-bit address contents is used to control the SIA.

The following table the PIA/SIA control register RAM access code.

Register	SBRAMx	BRx	Crx	IOx	AREXx	ADDx	PIA Reg*	SIA Reg*
IACR1	0	0	0	0	0	D0	0	1
IACR2	0	0	0	0	0	D4	0	1
IACR3	0	0	0	0	0	D5	0	1
IAADD	0	0	0	0	0	CE	0,1	0,1
NOTES: *Registers to use when x=1. When x=2, add 10h.								

- For changes made to IACR1 to be effective, the host must write to IAADD with a value of 0002h.
- For changes made to IACR2 to be effective, the host must write to IAADD with a value of 0006h.
- For changes made to IACR3 to be effective, the host must write to IAADD with a value of 0007h.

Configuration default values are shown below.

DEFAULT VALUE			
CONFIGURATION	**IACR1**	**IACR2**	**IACR3**
V.17/V.33	1D9Eh	0008h	0000h
V.29	1D9Eh	0008h	0000h
V.27ter	1D9Eh	0008h	0000h
V.21 Ch. 2	1D9Eh	0008h	0000h
V.23/Caller ID	1D9Eh	0008h	0000h
Tone Transmit/Detect	1D9Eh	0008h	0000h
Voice/Audio Codec	0D16h	0008h	0000h
Speakerphone	0D16h	0008h	0000h

The following signal flow block diagram is for a signal IA and it applies to both PIA and SIA.

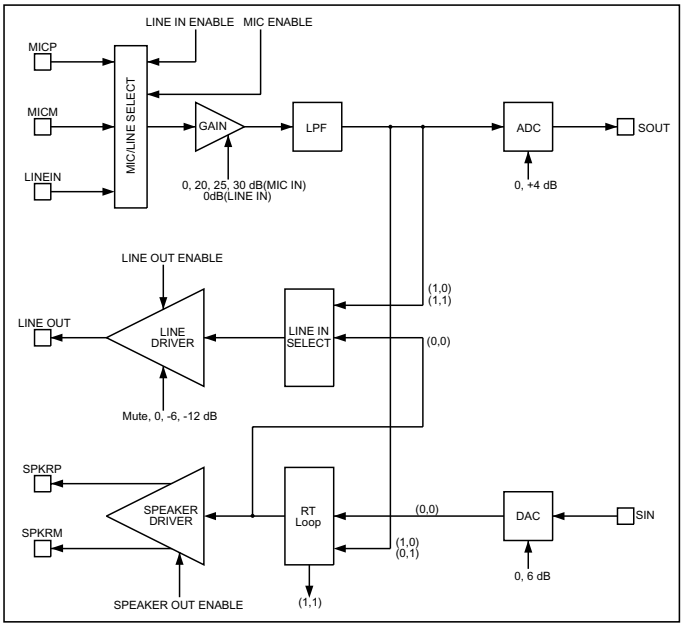


Fig. 5 PIA/SIA Signal Flow Control

2.6. IC8 (µPD65944) Hardware description

2.6.1 ASIC Functional Description

- Serial data reception from FaxEngine
- FaxEngine external bus connection
- Print data smoothing
- Resolution change and image scaling (50% to 200%)
  Horizontal scanning 203.2dpi -> 406.4dpi
  Vertical scanning 97.79dpi (Standard)/195.58dpi (Fine)/391.16dpi (SuperFine) -> 391.16dpi
- Centering in horizontal scanning direction
- Buffer memory, page buffer control (SDRAM) and memory access control
- Compatible with multiple copying (repeat printing)
- Laser control, video signal output control
- Polygon motor/main charge drive waveform generation
- Pickup solenoid and heater lamp driven hardware protection
- Serial interface between microcomputer for engine control and µPD780032A (PrinterEngine)

2.6.2 Print Data Conversion Process

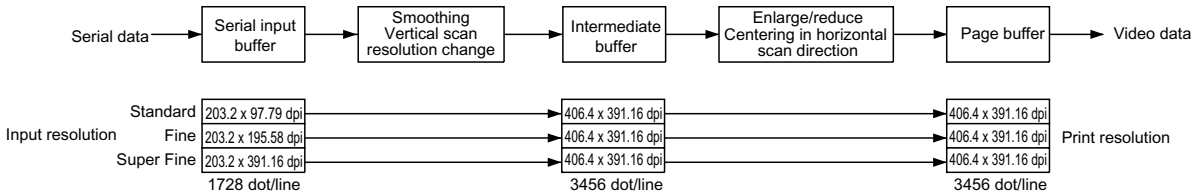


Fig. 6 Print Data Conversion Process

2.6.3 ASIC Constitution

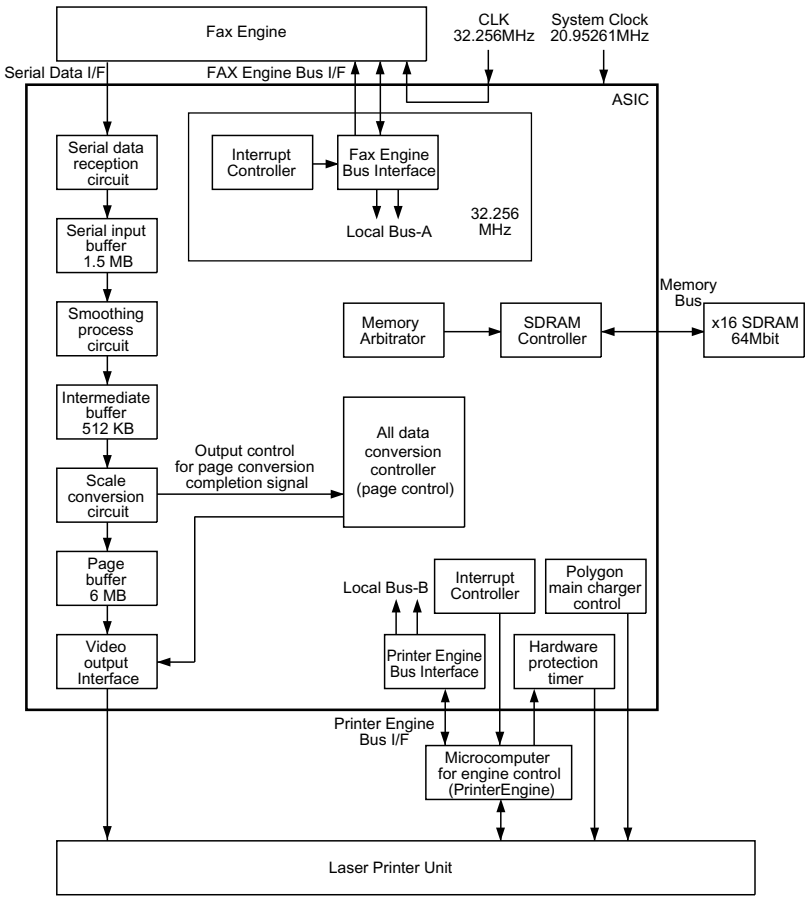


Fig. 7 ASIC Constitution

2.7. IC9 (µPD780032A) Hardware description

2.7.1 Features

- Internal memory

Product Name	Item	
	Program memory (ROM/ Flash memory)	Data memory (Fast RAM)
µPD780032A	16Kbyte	512byte

- External memory extension space: 64 KB
- Changeable minimum instruction execution time from high speed (0.24µs: with 8.38 MHz main system clock) to super low speed (122µs: with 32.768 kHz sub system clock)
- Command set for system control

  Bit processing in entire address space
  Built-in command for multiplication/division
- I/O port: 51 pins (N-ch open drain: 4 pins)
- 10 bit resolution A/D converter: 8 channels (µPD780034A sub series only)
- Serial interface: 3 channels

  3-wire Serial I/O mode: 2 channels
  UART mode: 1 channel
- Timer: 5 channels

  16 bit timer/ event counter: 1 channel
  8 bit timer/ event counter: 2 channels
  Clock timer: 1 channel
  Watchdog timer: 1 channel
- Interrupt vector: 20
- 2 clock oscillation circuits (main system clock and sub system clock)
- Power supply voltage: Vdd = 1.8 to 5.5 V

2.7.2 Block diagram

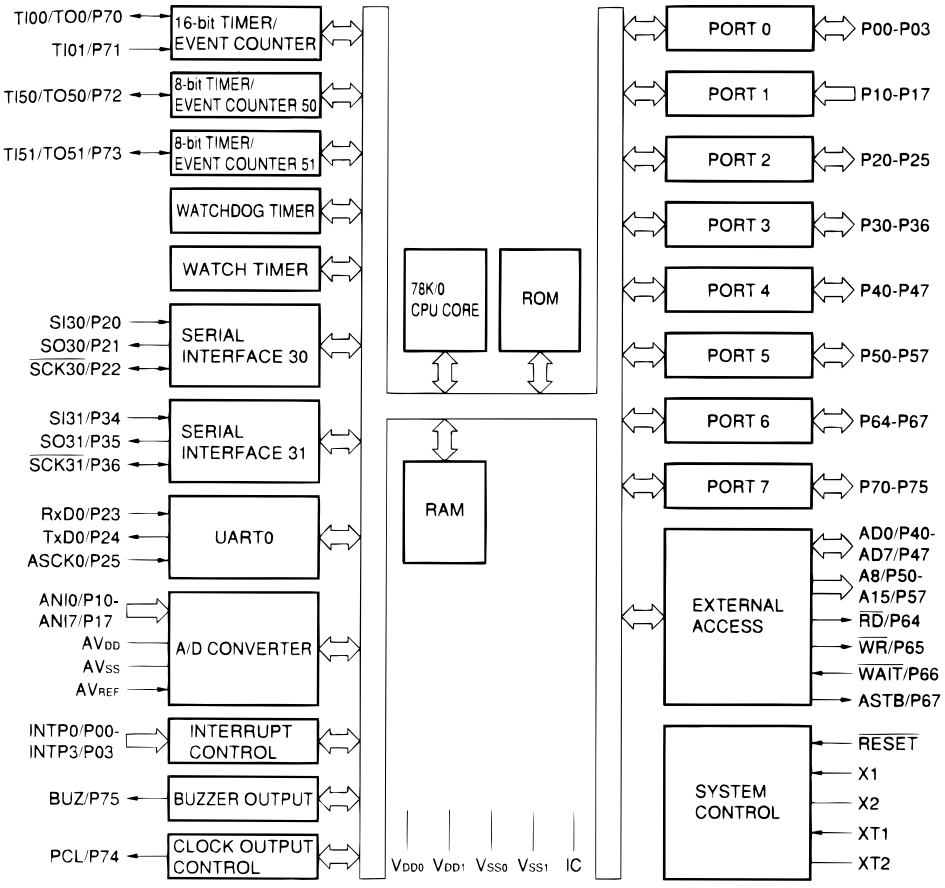


Fig. 8 Block Diagram

[3] Circuit description of printer PWB (PCU)

The CPU and ASIC control printing.

1) **Block diagram**

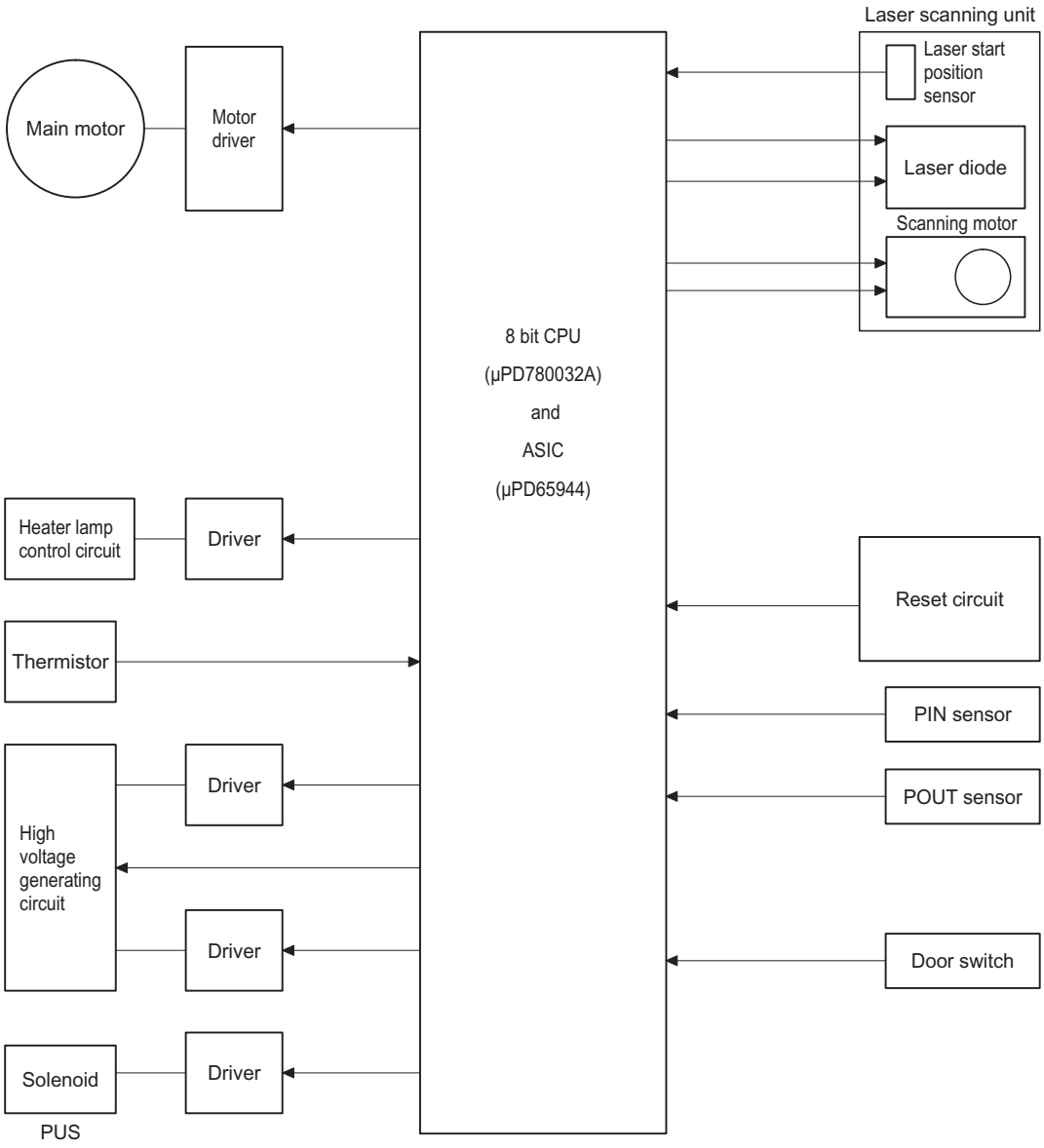


Fig. 9

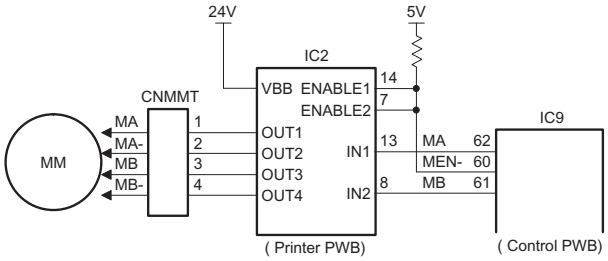
The PCU controls the following functions and items:

1 Rotation of the main motor (pulse motor)
2 High voltage output
3 Fusing temperature
4 Optical system (polygon motor/ laser APC circuit start)
5 Temperature correction of fusing temperature and high voltage output

2) **Unit control**

a. Main motor drive circuit

This machine uses the 4-phase pulse motor, and is driven by the following pulses and the circuit



(Drive waveform)

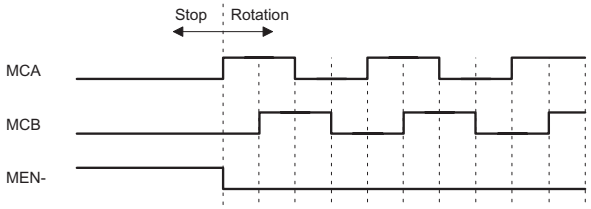


Fig. 10

b. Paper feed controller

Basically, the feed roller is rotated 1.5 times.

If interval between PUS and PIN is within 0.5 sec., it is rotated 1 time.

The procedure of clutch control

1 Timer is cleared by PUS ON according to clutch control demand.
2 PUS OFF 100 ms after PUS ON
3 PUS ON again 450 ms after the procedure 1 above.
4 If paper is remained in PIN 500 ms after the procedure 1, the third PUS ON is stopped.
5 PUS OFF 1.25s after the procedure 1. Clutch control demand OFF if additional control is cancelled.
6 PUS ON again 1.534s after the procedure 1.
7 Clutch control demend OFF 3.366s after the procedure1.

If the paper is not fed normally and the paper in detector signal (PIN_) is not outputted even with the above operation, the PCU judges it as a paper jam display is made.

The paper in detector signal (PIN_) is used for the top margin control signal in addition to jam detection.

The diagram below shows timings of clutch operation.

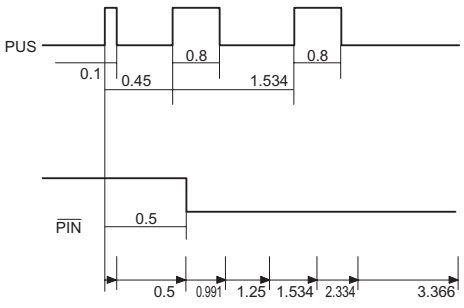


Fig. 11

c. Electrical connection

In the paper feed and transportation system, drive parts and sensors are connected as shown in the figure below.

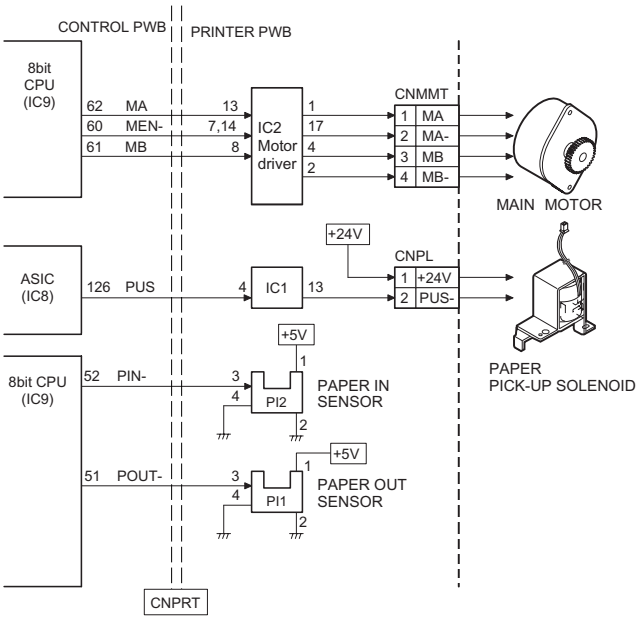


Fig. 12

- The main motor, which is the drive source for the paper feed and transportation system, is a 4-phase stepping motor in 2-phase excitement bipolar system, The step angle is 7.5°.
- The pick-up solenoid operates on 24V to turn on/off paper feed.
- There are following kinds of sensors.

  Paper in sensor: (Transmission photo transistor):

  This sensor is used to detect the paper feed timing of the next paper (in prefeed) and to make synchronization between paper transport and image forming on the drum. This sensor is also used to detect paper jams.

  Paper out sensor: (Transmission photo transistor):

  This sensor senses paper exit, and paper jam.

  d. High voltage unit control

  The high voltage unit outputs the following voltages:

- Main charger voltage (DC-950V + AC600V peak to peak)
- Transfer charger voltage (DC+2100V + AC600V peak to peak)
- Developing bias voltage (DC-390V)

  The following signals are outputted from the CPU (ASIC) to control the above voltages.

- **MCON**

  This signal is to turn on/off the main charger.

  When this signal is outputted, Q7 is driven to the high impedance state. Then Q9 conducts to drive transformer T2.

  As a result, the main charger voltage is outputted to the secondary side of the transformer.

- **TC/BIASON**

  This signal is to turn on/off the transfer charger and the developing bias voltage.

  When this signal is outputted, Q3 is driven to the high impedance state. former.

- **PWMSIN**

  This signal is to control the main charger voltage and the transfer charger voltage. The PWM pulse of 288.76Hz is outputted.

  This pulse waveform adds the AC component to the main charger voltage and the transfer charger voltage.

  By changing the pulse duty of this signal, the main charger voltage and the transfer charger voltage are controlled (during temperature correction operation).

  When the pulse duty of this signal is changed, the collector currents of Q4 and Q8 are changed. Therefore, the base current of Q9 and the drive current of transformer T2 are changed to change the main charger voltage and the transfer charger voltage.

  R29, R31, C19, and C20 from a filter circuit which dulls the waveform of PWMSIN signal.

  e. Electrical connection

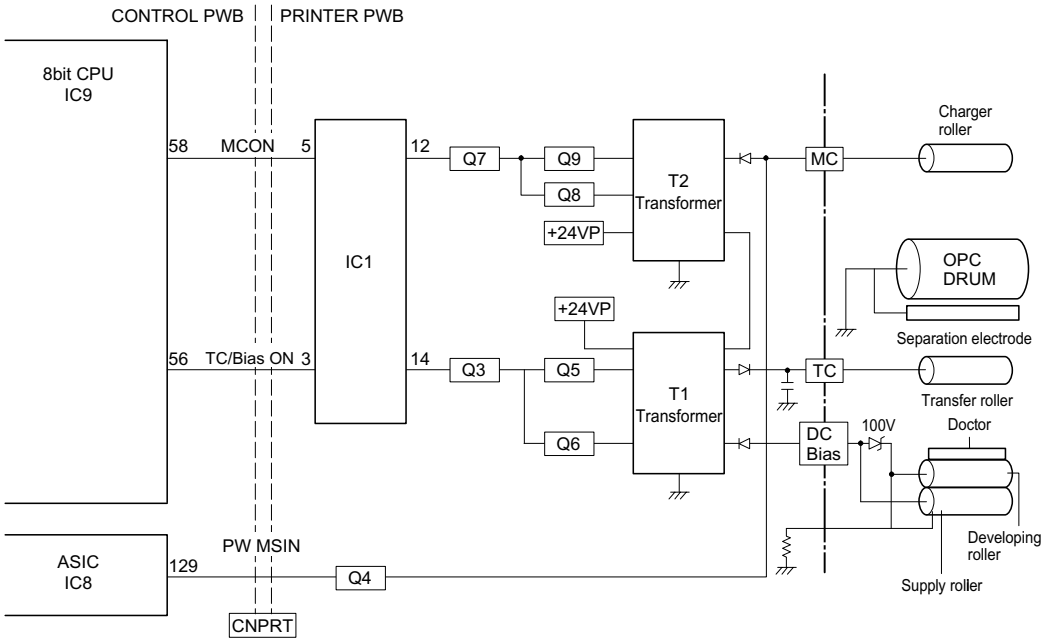


Fig. 13

f. Laser scanning unit

This unit controls the laser beam power and laser beam scanning.

The control is performed with the signals inputted outputted to or from the CPU and ASIC.

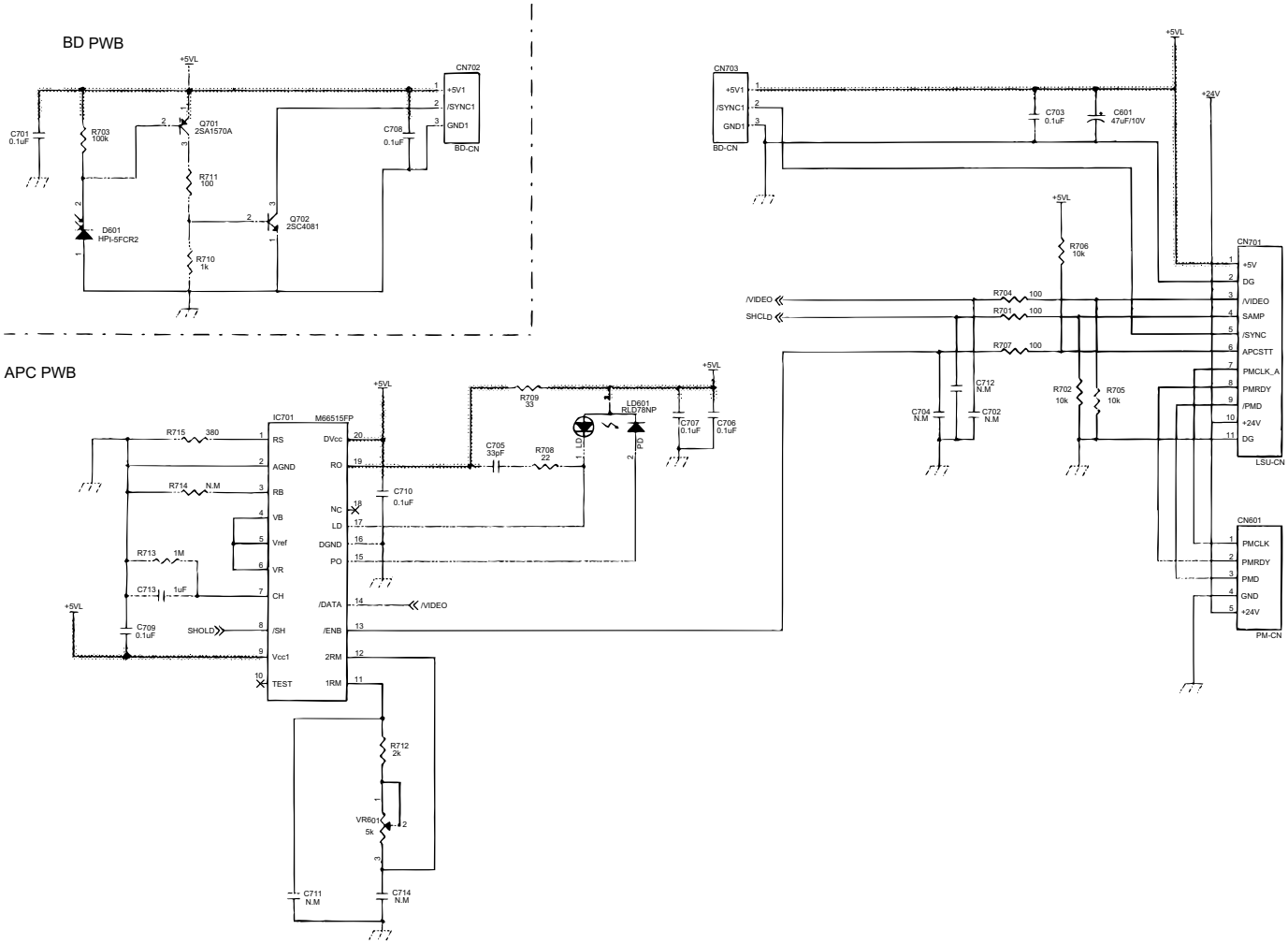


Fig. 14

1) **Signal functions**

PMCLK

Clock signal for driving the scanning motor. (770Hz)

PMD

Scanning motor ON/OFF signal.

APCSTT

Used to start the laser beam generation circuit.

SYNC

This signal is outputted when the laser beam scanned by the laser beam sensor signal is sensed by sensor (Photo diode D601). Used for the left margin control.

VIDEO

This signal is used to control the laser diode emitting. Not only when the laser beam is emitted to perform the LEND process, but also when the laser beam is emitted as image data, ASIC controls and the signal is outputted from video terminal.

2) **Laser beam power control**

The laser beam power is controlled in the laser emitting unit PWB.

This circuit functions to keep the laser beam output power at a constant level.

The laser beam output is monitored with photo diode LD601 for monitor. When the laser beam output rises above the specified value, the impedance of photo diode LD601 is decreased to decrease the monitor input (3PIN) voltage of the laser diode control IC (IC701).

Then the laser diode (LTO28GS) drive voltage is decreased to decrease the laser beam output to the specified level.

When the laser beam output is decreased below the specified level, the contrary operation are performed.

3) **Starting operation**

Warm-up operation of laser scanning is described below.

The operation is made when the cover is closed from the open state, and is made before starting printing.

The PMCLK signal is the clock signal for scanner motor speed control. It is rectangular waveform of 770Hz.

1 The PMD_signal is to turn on/off the scanner motor. When this signal is outputted, the scanner motor is operated.
2 After 2 sec of starting the scanner motor, the laser power control signal APCSTT and the laser diode ON signal VIDEO (LEND) are outputted to output laser beams.
3 After 0.5sec from outputting the VIDEO (LEND) signal and turning on the laser diode, the LEND process operation is started.

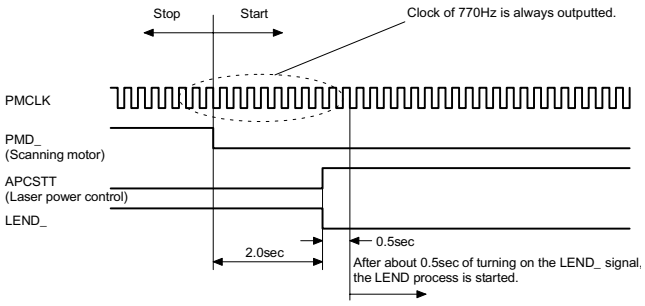


Fig. 15

4) **LEND process operation**

The LEND process operation means outputting the HSYNC (HSYNC_) signal for left margin control.

To control the left margin, the scanning position of the scanning mirror on the virtual area of the left side out of the margin must be precisely detected when the scanning motor reaches the stable rpm. Therefore, the dummy laser beam must be outputted to detect the position.

The laser beam scanning position is detected by the laser beam sensor, and the SYNC signal is outputted.

The dummy laser beam is outputted for every scanning of one line only when the scanning position of the scanning mirror is outside the left area of virtual paper. (The laser is forcibly turned on by the PCU when the laser beam scanned by the scanning mirror come in front of the laser beam sensor (left margin reference).)

NOTE: The laser beam is not outputted continuously during printing operation of one paper. It repeated ON and OFF for every scanning of one line.
The laser beam is outputted only when the LEND process for controlling the print left margin is made and when the print image is drawn on the photoconductor.

- **Laser control signal**

LEND signal is controlled based on HSYNC signal.

For simultaneous APC control, SAMP signal is also controlled.

These timings are made by ASIC. The line-end-off section is set by the register.

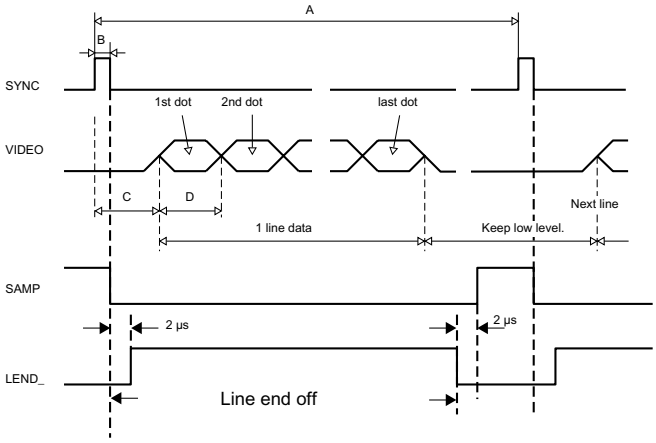


Fig. 16

1 When the LEND_ signal is on, the dummy laser beam is outputted, and the scanned laser beam is detected by the laser beam sensor to output the SYNC signal. When the SYNC signal is outputted, the CPU detects the scanning position.
2 At the rising of the SYNC signal, the CPU turns off the LEND_signal. By this, the dummy laser beam is turned off. When the CPU detects the scanning position with the SYNC signal, the dummy laser beam becomes unnecessary.
3 The draw signal Video_ is made from the DDATA_ signal of one line outputted from the ASIC. When it is outputted, the laser beam is turned on off accordingly. This corresponds to the making of latent electrostatic images on the photoconductor drum.
4 When making of latent electrostatic images for one line is completed, the CPU turns on the LEND_ signal before the output timing of the SYNC.

Procedures 1~4 are repeated.

Resolution	Time				
	A	B	C	D	Line end off
406.4 x 391.16dpi	1298.7524 µH	4.6 ~ 15.3µSec	(45.971 µSec)	(190.907 nSec)	510µs

g. Electrical connection

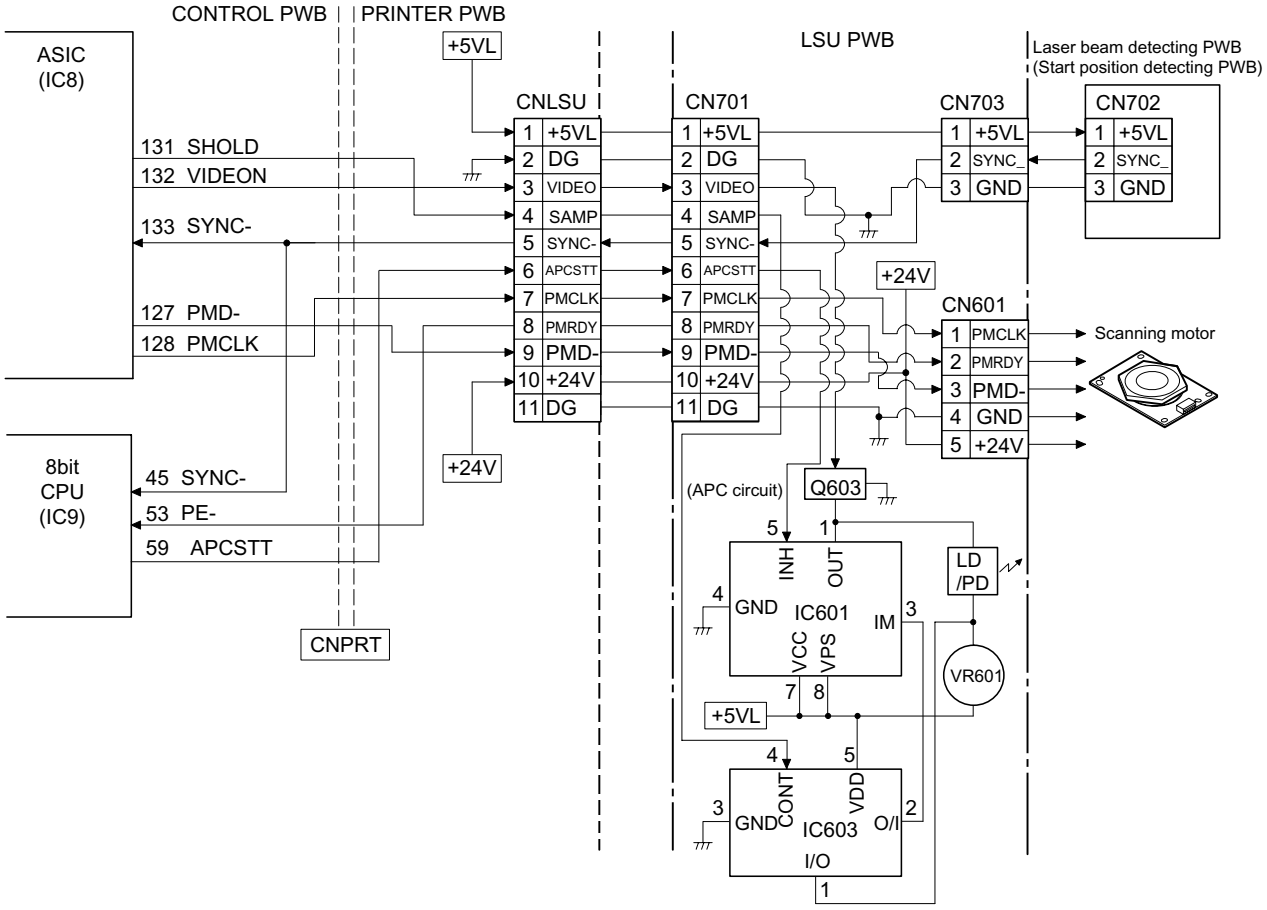


Fig. 17

The laser diode control board is driven in synchronization with the VIDEO signal sent from the CPU board.

By the operation of the laser diode control board, infrared laser beams of 780nm are outputted from the laser diode and made in parallel by the collimator lens, and focused onto the scanning motor by the first cylinder lens.

The scanning mirror rotation is controlled by the scanning motor to be constant at 7700rpm (400dpi), and the laser beam is directed to the main scanning direction.

The scanning motor is of six-surface, and six-line print is made for one rotation of the scanning motor. The laser beam reflected by the scanning mirror is directed to the curved mirror by the first reflection mirror. Before reaching the curved mirror, the laser beam enters the photo sensor on the start position detector board, making vertical synchronization and print data synchronization (generating the SYNC signal).

The curved mirror directs the laser beam to the second reflection mirror in parallel and in even interval regardless of difference in angles of incidence from the first reflection mirror. The laser beam reflected by the second reflection mirror is passed through the second cylinder lens to reach the photoconductor drum.

The second cylinder lens corrects blur of the images caused by variations in the installing angle due to the two-surface scanning mirror, providing stable laser beams to the photoconductor drum for each line.

h. Fusing unit control

The fusing section is heated by the heater lamp (400W). The heater lamp is controlled (turned on/off) to keep the optimum temperature. The following signals are outputted by the ASIC and CPU for control.

1) **Signal functions**

- **HLON**

  This signal is to turn on/off the heater lamp. When this signal is outputted, photo triac PD101 turns on to turn on triac T2. Then an AC power is supplied to the heater lamp to turn on the heater lamp.

- **RHT**

  This is the output signal of the thermistor which detects the surface temperature of the heat roller. It is inputted to the CPU. The heater lamp is turned on/off depending on the value of RTH voltage.

2) **Protect against overheat**

Though the heater lamp ON signal (HLON) is normal, if triac PD101 and T2 are kept ON, overheat may result.

To prevent against this, temperature fuses are used.

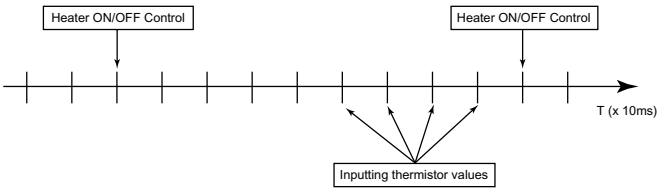
When the fusing roller surface temperature exceeds about 187 degrees C, the temperature fuse blows off to open the 12V power line which drives the power relay RY101, opening the power line for the photo triac PD101 and triac T2. Therefore, the power is not supplied to the heater lamp.

A temperature fuse is also provided in the heater lamp power line. In case of overheating, the heater lamp power line is opened directly.

3) **Timing of temperature detection and heater control**

As shown by the following timings, four values of software thermistor voltage are input as A/D conversion values. The mean value of two medians among these four is regarded as the newest thermistor value (temperature).

- The value is compared with the temperature (155°C) control value every 100 ms.
- If the value is higher than 155°C, the heater becomes OFF. If lower, the heater becomes ON.
- The heater ON timing is in accordance with the timing of Power Zero Cross interrupt.



Timings of thermistor value input and heater control

Fig. 18

4) **Heater control (Temperature control)**

Control method

1. Base machine printing (Copy, List, Receiving)

- Temperature control is started when data to be printed are produced (or when slips are to be prepared).
- Temperature is controlled at 155 °C. (Heater OFF over 155 °C. Heater ON below 155 °C.)
- After printing, temperature is not controlled. (Heater is not turned ON.)
- Fan motor starts revolving from the beginning of temperature control and stops 120 seconds after printing is finished.

2. PC printing

- Temperature control is started when PC starts printing.
- Temperature is controlled at 155 °C. (Heater OFF over 155 °C. Heater ON below 155 °C.
- After printing, temperature is not controlled.
- Fan motor starts revolving from the beginning of temperature control and stops 120 seconds after printing is finished.

Temperature control is not started from the start of printing because the first copying time should be within 28 seconds.

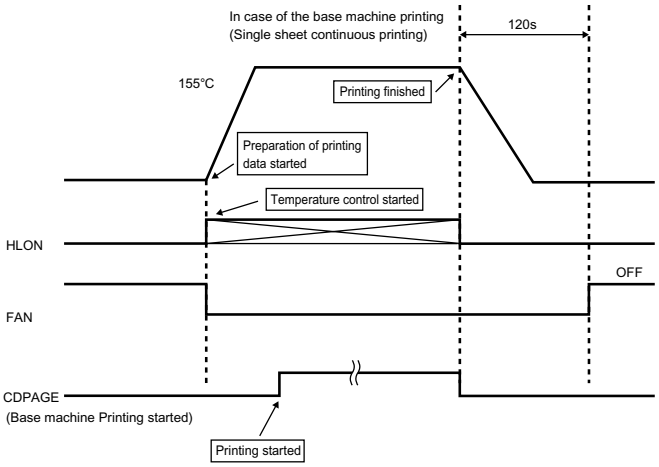
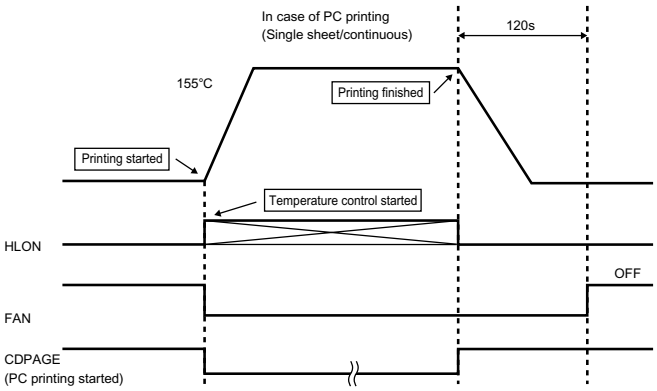


Fig. 19



The Heater ON timing is set during Zero Cross interrupt.

Fig. 20

i. Electrical connection

Heater lamp:	The 400W halogen lamp is used. This spring presses the pressure roller with a 690g pressure on one side.
Thermistor:	Thermistor of chip type with good response is used to respond to rapid heating (rapid warm-up of about 8 sec) of the heat roller.
Temperature fuse 1 (132°C):	Temperature fuse 1 is installed to the fusing cover. It blows off when the ambient temperature of the fusing cover rises abnormally (132°C).
Temperature fuse 2 (187°C):	Temperature fuse 2 is in close contact with the heat roller. It blows off when the heat roller temperature rises abnormally high (187°C).

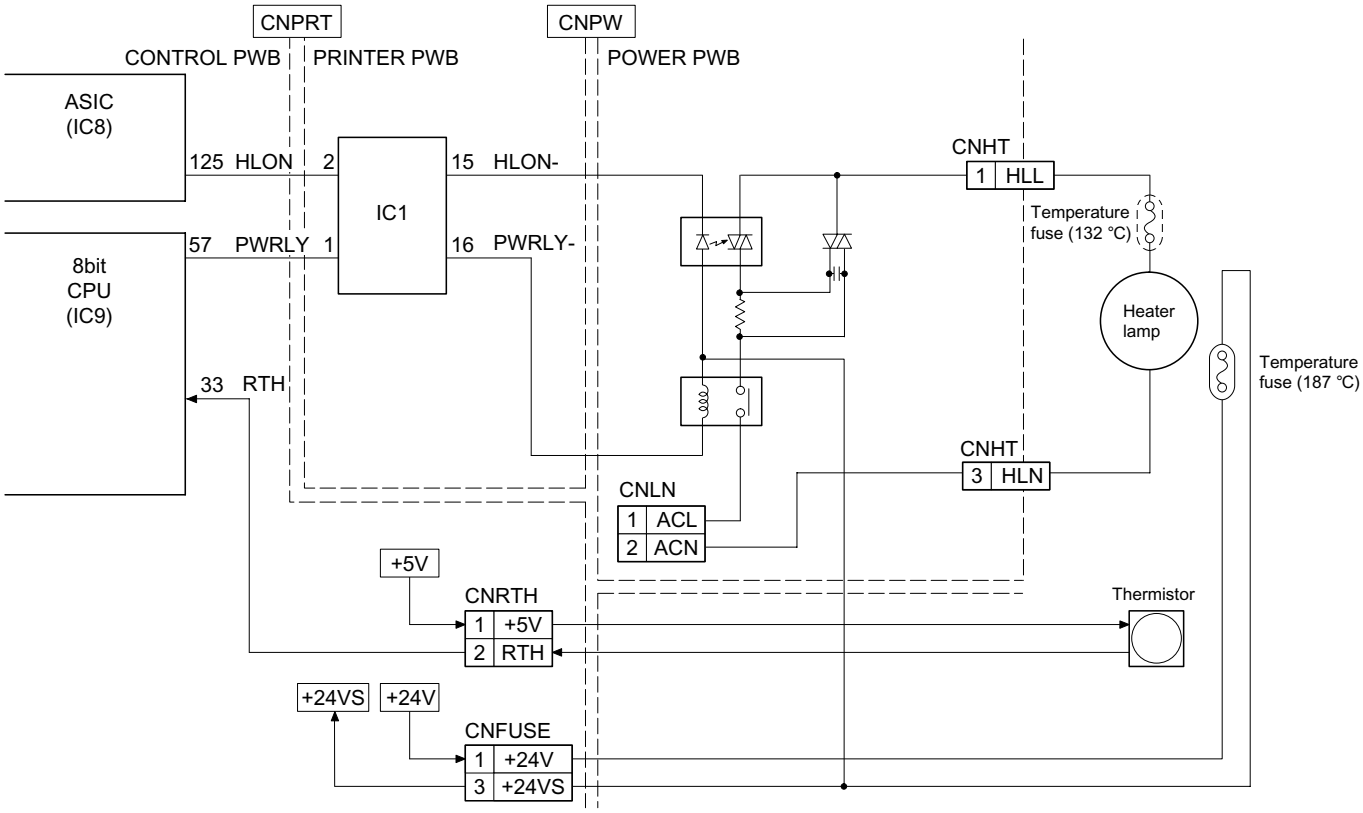


Fig. 21

- The heat roller surface temperature is maintained to the optimum level by controlling ON/OFF of the heater lamp according to the temperature data (voltage) from the thermistor. The heat roller surface temperature is controlled to 155°C. Two temperature fuses are provided to protect the heat machine from an abnormally high temperature in the fusing section. The heater lamp is lighted by the AC power.

j. Timing chart

- Printing process

  Pre-revolution processing

  Timing from DPAGE (internal signal of ASIC) to BIAS ON (pre-revolution processing) is specified.

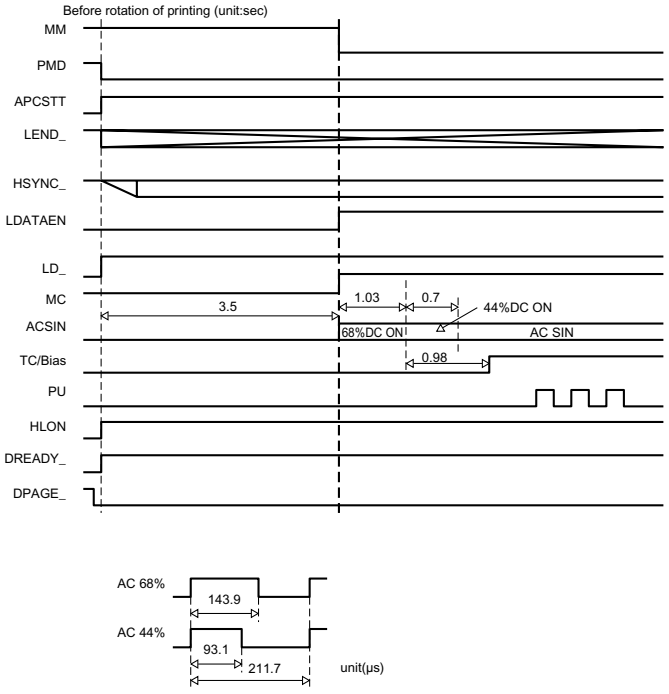


Fig. 22

Laser control becomes hard control from the movement when HSYNC interruption was permitted.

Post-revolution processing

Timings from POUT to motor stop (post-revolution processing for printing) are specified.

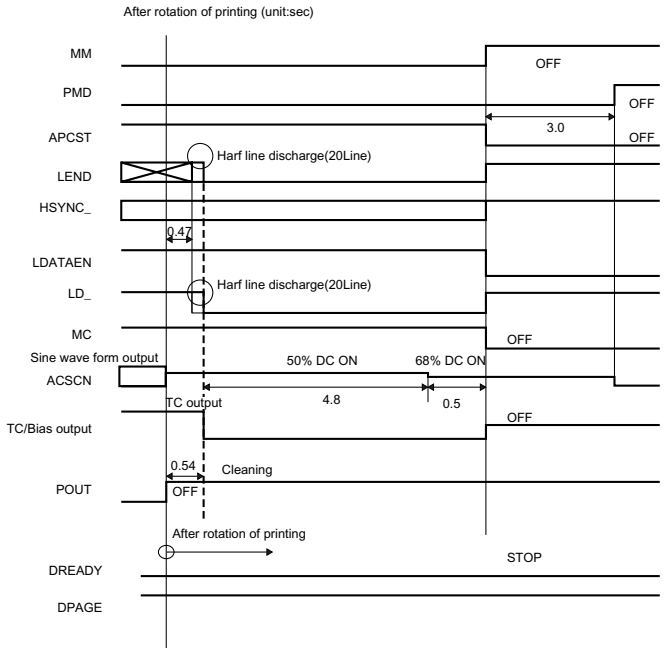


Fig. 23

Continuous printing processing

*1 Waiting according to fixing temperature (Environmental temperature)

*2 Top margin

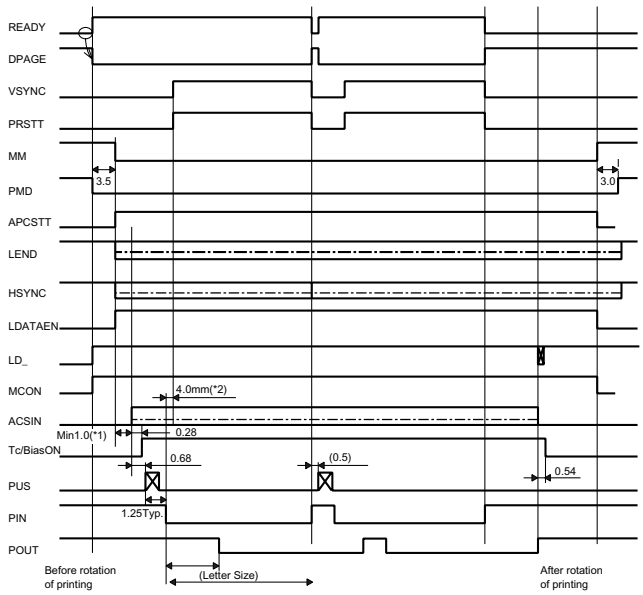


Fig. 24

Revolution before cleaning when power is on and cover is closed

Unit: second

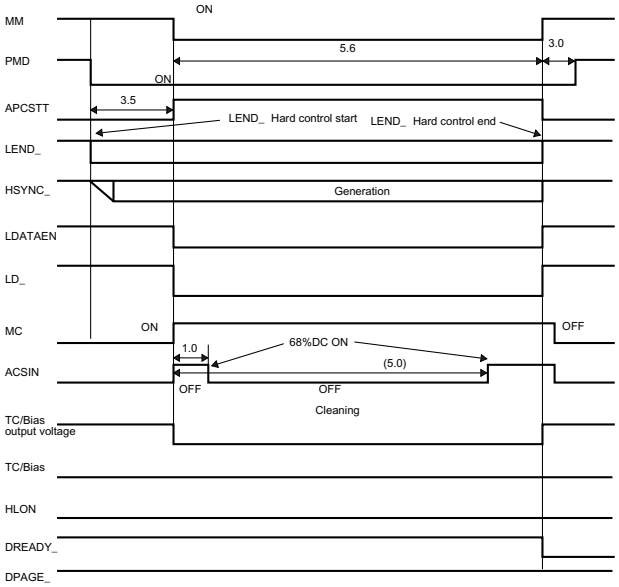


Fig. 25

k. Top margin control

Top margin is set according to the number of lines (the number of HSYNC interrupt) from detail paper Pin On to LASER input.

The interval between Pin On and point D is 52.6747 mm.

The interval between Point D and point B is: 27.33 (C-D) + 8.3769 (B-C) = 35.7069 mm

If top margin is 4 mm,

52.6747 - 35.7069 + 4 = 20.9678 m

In case of the actual software processing, chattering of the sensor is considered to be observed for 9 msec.

The processing speed is 50 mm/sec; while chattering is being observed, paper is fed by 0.45 mm (9 x 50/1000 = 0.45 mm).

In order to gain top margin of 4 mm, printing data should be processed after paper is fed by 20.5178 mm (20.9678 – 0.45 = 20.5178 mm) following PIN On detection.

The base machine resolution in the sub-scanning direction is 391.16 dpi; If the value 20.5178 mm is converted into the number of lines, 315.9 lines are obtained from 391.16 x 20.5178/25.4. Accordingly the software set value is considered to be based on 316 lines.

Similarly, considering from the fact that resolution of PC printing is 600 dpi, the number of lines is 484.6 lines (600 x 20.5178/25.4=484.6).

The software set value is based on 485 lines.

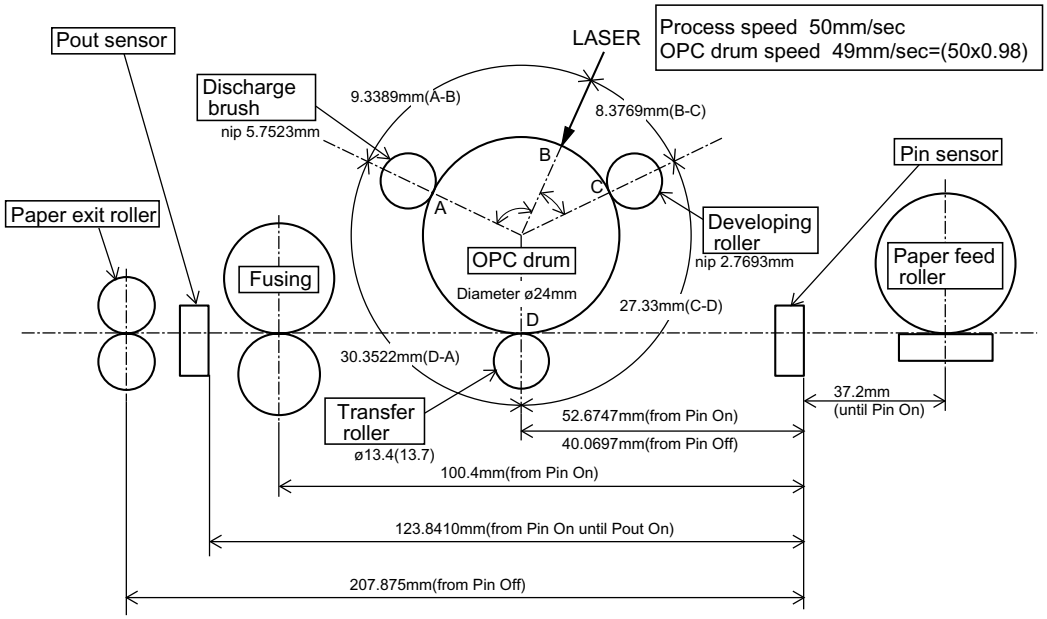


Fig. 26

[4] Circuit description of LIU PWB

1. LIU block operation description

1.1. Block diagram

Block diagram

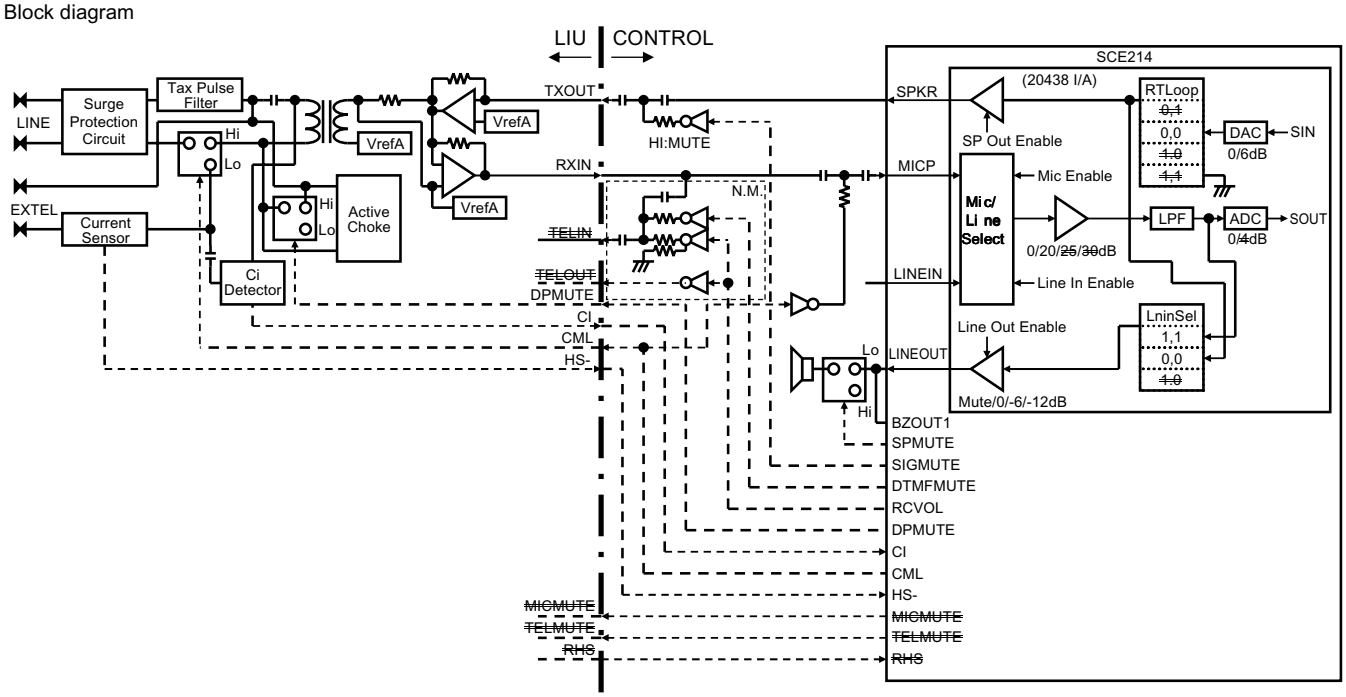


Fig. 27

1.2. Circuit description

The LIU PWB is composed of the following 8 blocks.

1. Surge protection circuit
2. On-hook status detection circuit
3. Dial pulse generation circuit
4. CML relay
5. Matching transformer
6. Signal selection
7. CI detection circuit
8. Power supply and bias circuits

1.3. Block description

1.3.1 Surge Protection circuit

This circuit protects the circuit from the surge voltage occurring on the telephone line.

- The AR1 protects the circuit from the 390V or higher line surge voltages.
- The AR3 protects the circuit from the 470V or higher vertical surge voltage.

1.3.2 On-hook status detection circuit

The on-hook status detection circuit detects the status of the push speaker key, and the status of the hook of a telephone externally connected

- External telephone hook status detection circuit ($\overline{HS}$)

  This circuit comprises the current sensor IC1, resistor R101 and capacitor C2.

  When an external telephone is connected and enters the on-hook mode, the output of current sensor IC1, responds. The status signal $\overline{HS}$ is input to the pin 10 of (Sub ASIC)(IC21: control PWB)

  $\overline{HS}$ LOW: EXT. TEL OFF-HOOK

  $\overline{HS}$ HIGH: EXT. TEL ON-HOOK

1.3.3 Dial pulse generation circuit

The pulse dial generation circuit comprises the photo-coupler PC2 and CML relay, polarity guard REC1, and transistor Q1.

1.3.4 CML relay

The CML relay switches over connection to the matching transformer T1 while the FAX is being used.

1.3.5 Matching transformer

The matching transformer performs electrical insulation from the telephone line and impedance matching for transmitting the TEL/FAX signal.

1.3.6 Signal selection

The following signals are used to control the transmission line of TEL/ FAX signal. For details, refer to the signal selector matrix table.

[Control signals from output port]

Signal Name	Description
CML	Line connecting relay and DP generating relay H: Line make L: Line break
SP MUTE	Speaker tone mute control signal H: Muting L: Muting cancel

[Signals for status recognition according to input signals]

Signal Name	Function
CI	Incoming call (CI) detection signal.
$\overline{HS}$	H: The handset or external telephone is in the on-hook state. L: The handset or external telephone is in the off-hook state.

[Other signals]

Signal Name	Function
TXOUT	Transmission (DTMF) analog signal output from modem
RXIN	Reception (DTMF, others) analog signal input into modem

No.	Signal Name (CNLIU)	No.	Signal Name (CNLIU)
1	+24V	8	CML
2	DG	9	$\overline{CI}$
3	N.C.	10	$\overline{HS}$
4	N.C.	11	N.C.
5	N.C.	12	+5V
6	RXIN	13	DPMUTE
7	TXOUT	14	TELOUT

1.3.7 CI detection circuit

The CI detection circuit detects the CI signals of 15.3 Hz to 68 Hz.A CI signal, which is provided to the photo-coupler PC1 through the C8 (0.47 uF), R1 (47 K), and ZD3 when the ring signal is inputted from the telephone line.

1.3.8 Power supply and bias circuits

The voltages of +5V and +24V are supplied from the control PWB unit.

(Example: Fax signal send)

Block diagram

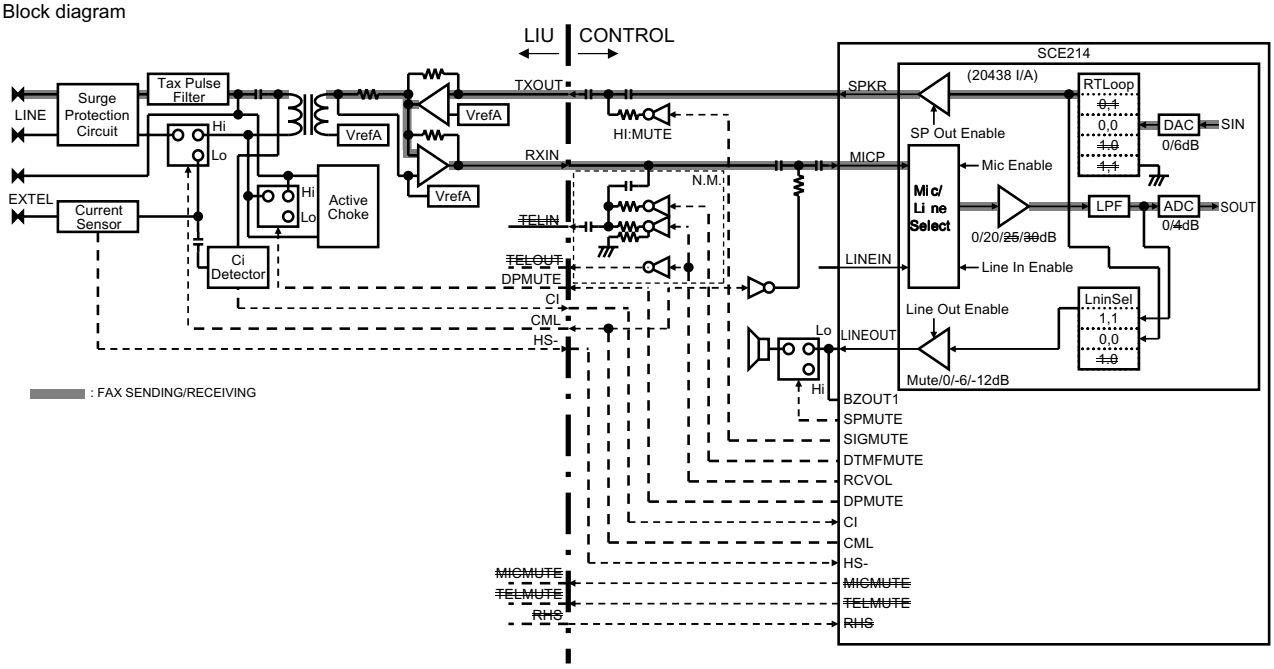


Fig. 28

[5] Circuit description of power supply PWB

This power supply unit has the function to convert the AC220-230V (50Hz) to DC24V, and provide these output to the equipment. The following explains the function of each block. (See Fig. 29)

1. Filter circuit block

This circuit reduces the outgoing noise through the input lines which is generated in the power supply unit and prevents the invasion of the noise from the lines.

(The excessive surge such as thunder is prevented by the varistor (Z1).)

2. Rectification and smoothing circuit block

This circuit rectifies and smoothes AC input and provides the DC voltage to the switching circuit block.

3. Switching circuit block

This circuit converts the DC voltage (provided from the rectification and smoothing circuit block) to the high-frequency pulse voltage by FET (Q1)'s switching (on/off repeat) and provides the energy to the transformer (T1). It discharges the energy (charged during the FET ON time) to the secondary side during the FET OFF time through the secondary windings. The output voltages on the secondary side provided by the energy depend on the ratio of the winding turns (primary : secondary) etc.

4. Control circuit block

This circuit block controls the output voltage by transmitting the detected 24V voltage to the primary control circuit through the photo-coupler (PC1). In case of the over-current, this circuit reduces providing the energy to the transformer. In case of the over-voltage, this circuit reduces providing the energy to the transformer by letting the power-zener (D202 : connected between the 24VH output voltage and GND) into the short mode and letting the over-current protection circuit work.

5. 24 VH output circuit block

This circuit block rectifies and smoothes the high-frequency pulse voltage provided by the transformer, and provides the DC24V output to the equipment. The output voltage is adjusted by the variable resistor (VR101).

6. 24 V output circuit block

This circuit block supplies DC24V output to equipment through a micro-switch (SW101) from 24VH provided by the transformer.

7. +5 V output circuit block

This circuit block rectifies and smoothes the high-frequency pulse voltage provided by the transformer and provides about DC6.5V output to the regulator IC and provides the DC5V output to the equipment.

8. AC output circuit block

This circuit block supplies AC output from AC input to equipment through the optical-isolator (PC2) and the power-relay (RL1) by signals (+24V/HL ON+/PWRLY-).

9. Zero cross circuit block

This circuit block rectifies the AC input, and provides the ZC signal to equipment through the photo-coupler (PC3).

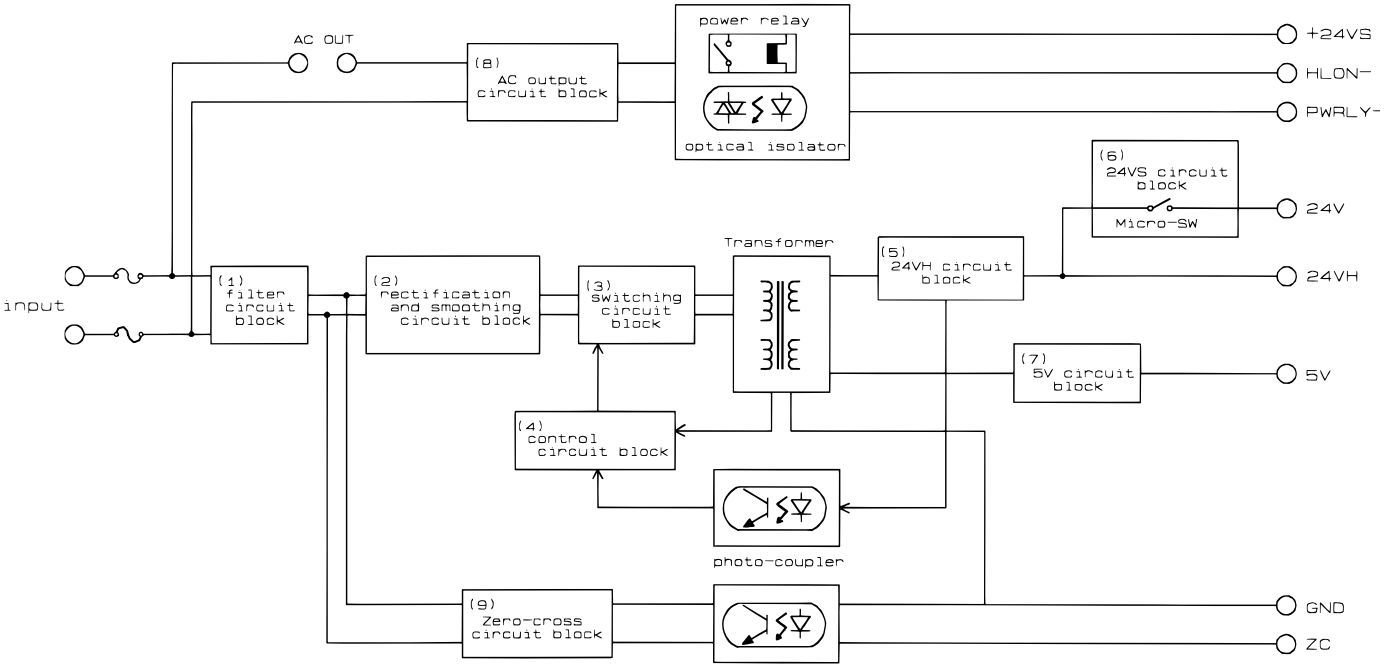

AC OUT
(8)
AC output
circuit block
power relay
optical isolator
+24VS
HLON-
PWRLY-
(6)
24VS circuit
block
Micro-SW
24V
Transformer
(5)
24VH circuit
block
24VH
input
(1)
filter
circuit
block
(2)
rectification
and smoothing
circuit block
(3)
switching
circuit
block
(7)
5V circuit
block
5V
(4)
control
circuit block
photo-coupler
(9)
Zero-cross
circuit block
GND
ZC

Fig. 29

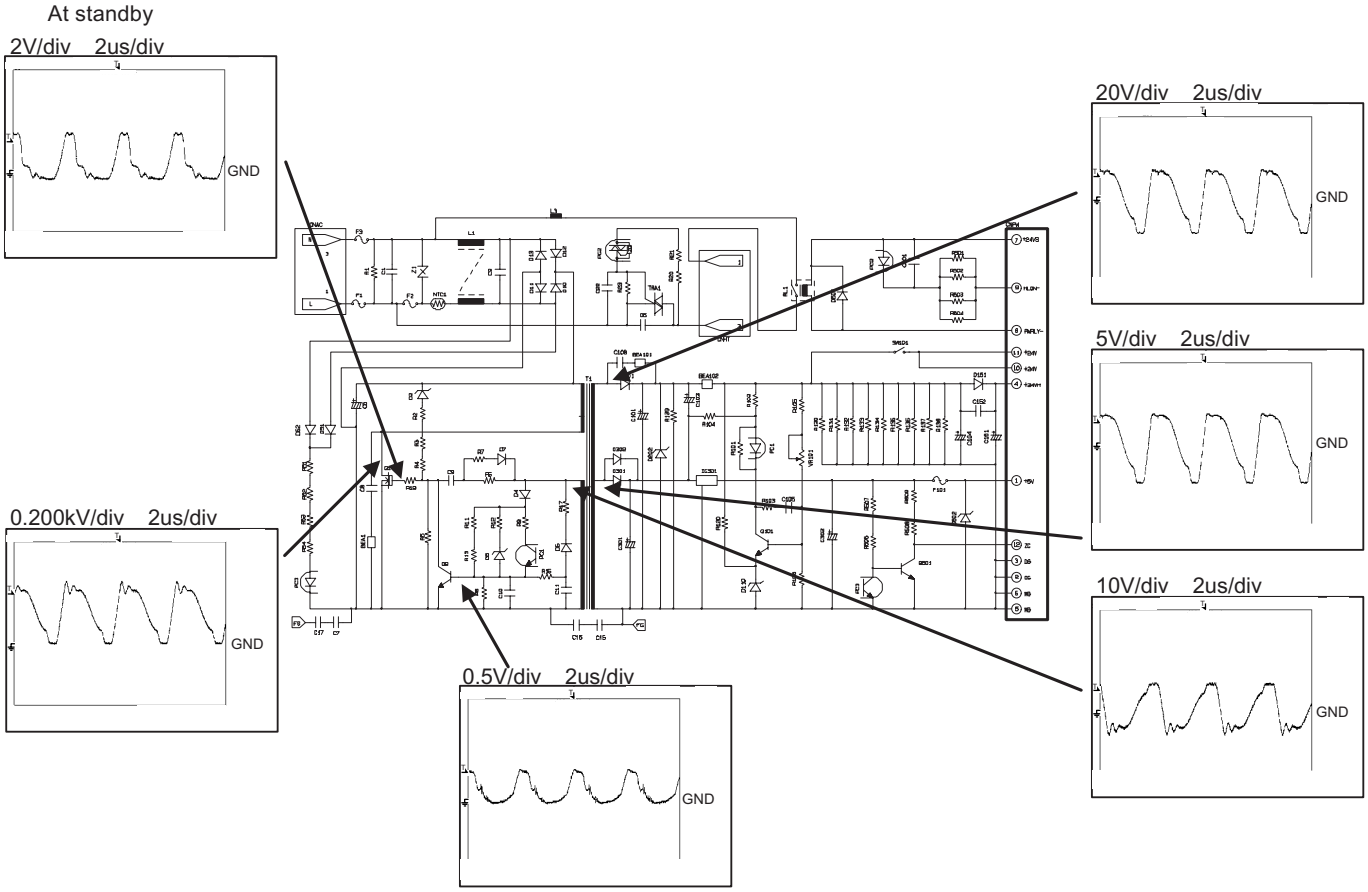

At standby
2V/div 2us/div
GND
20V/div 2us/div
GND
5V/div 2us/div
GND
0.200kV/div 2us/div
GND
10V/div 2us/div
GND
0.5V/div 2us/div
GND

Fig. 30

When the over current protection circuit works

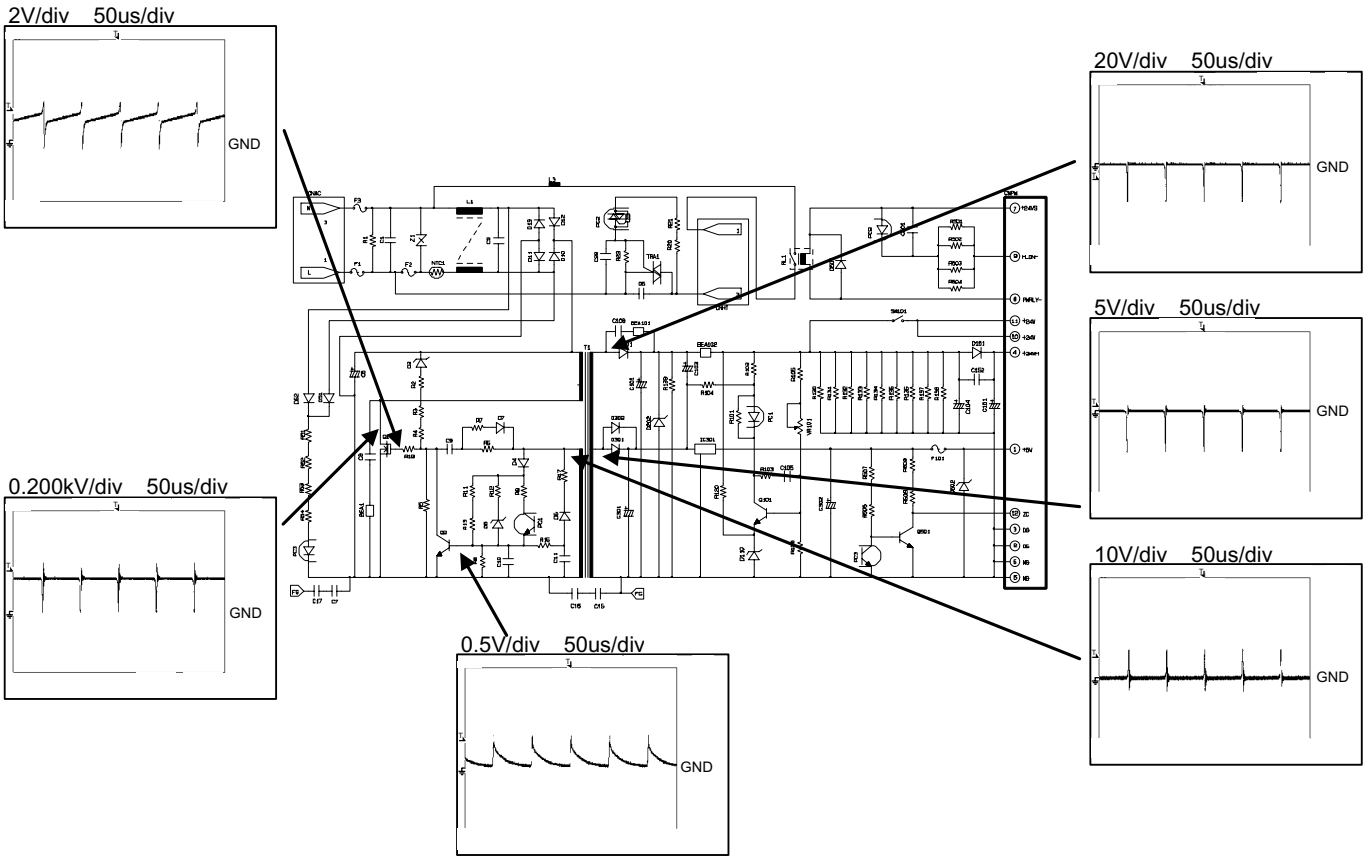


Fig. 31

[6] Circuit description of CIS UNIT

This CIS unit picks up optical information from the document, converts it into an electrical (analog) signal and it to the control PWB.

1. Block diagram

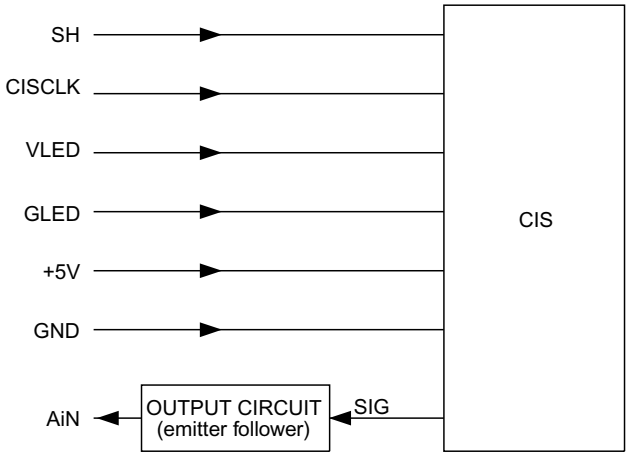


Fig. 32

2. Description of blocks

2.1. CIS

The IA2008-MB71B standard type of contact image sensor that consists of 1728 picture elements.

Receiving two drive signal (SI,CLK) from the control PWB, the transferred photoelectric analog signal SIG is impedance converted, and the signal AIN, is supplied to the control PWB.

2.2. Waveforms

1. CLK, SI, SIG signals within the control PWB.

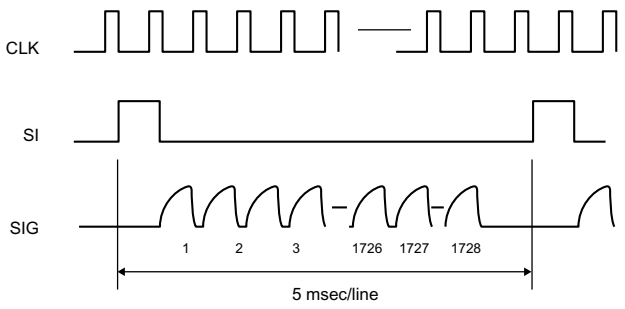
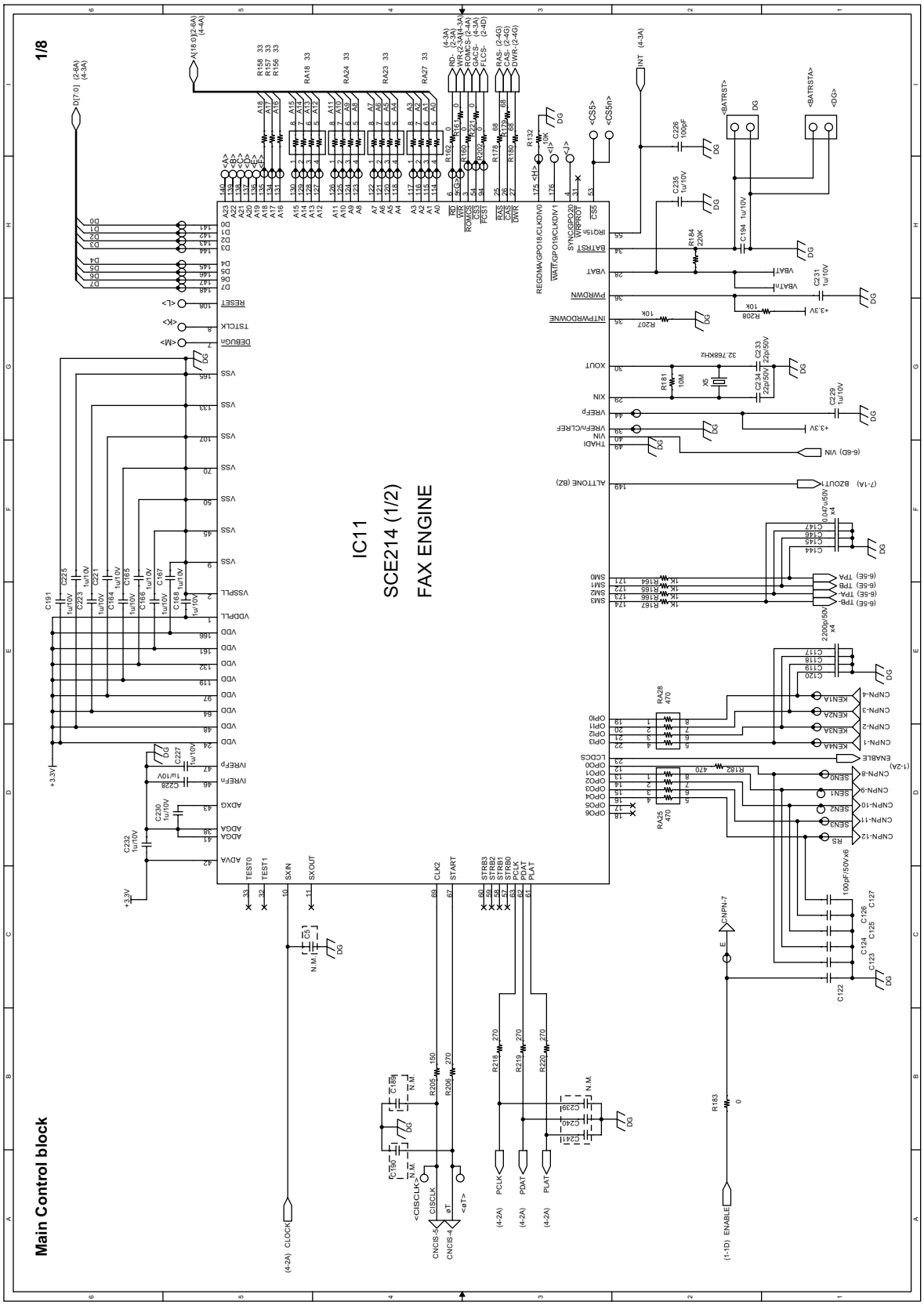


Fig. 33

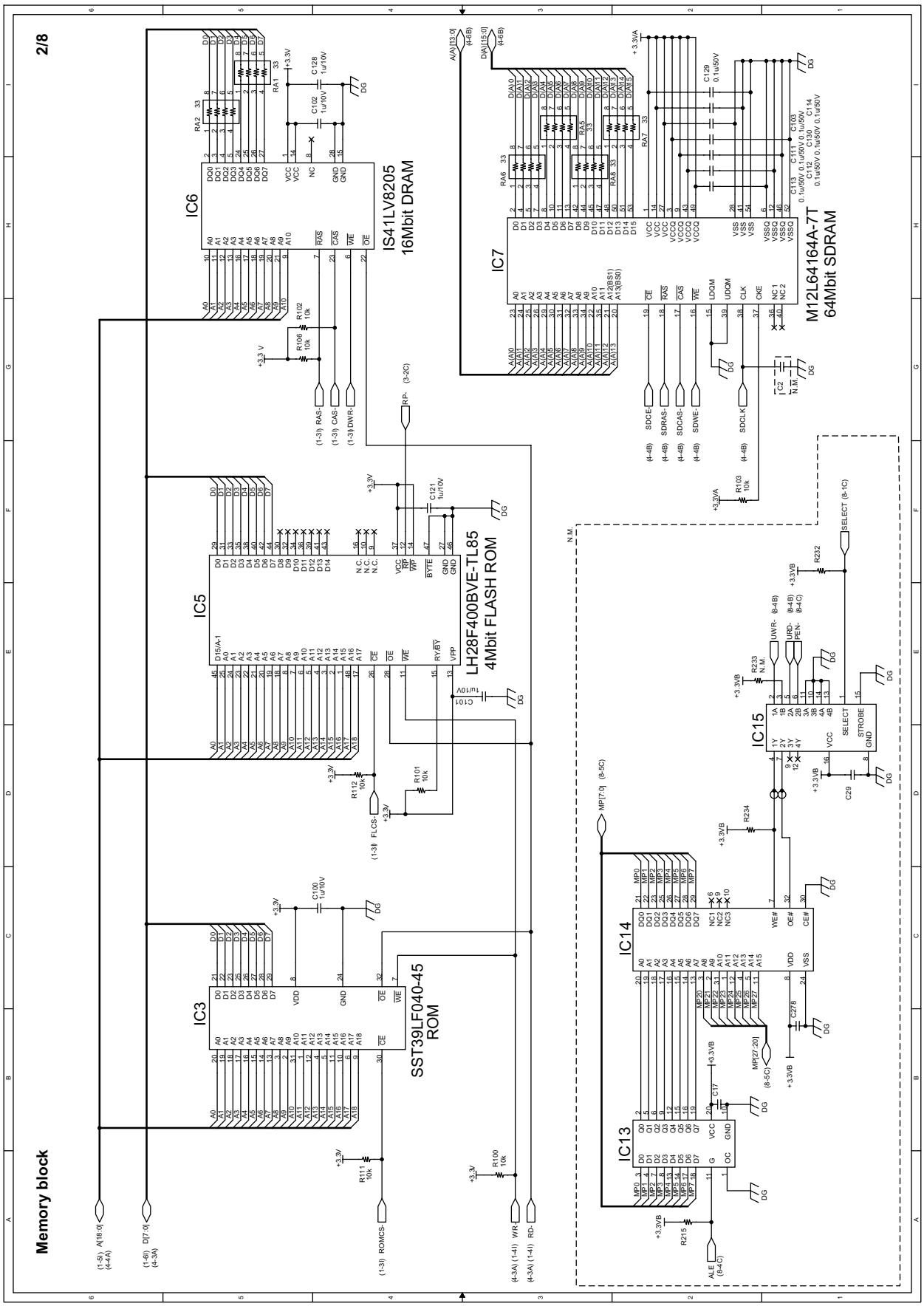
CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT

[1] Control PWB circuit

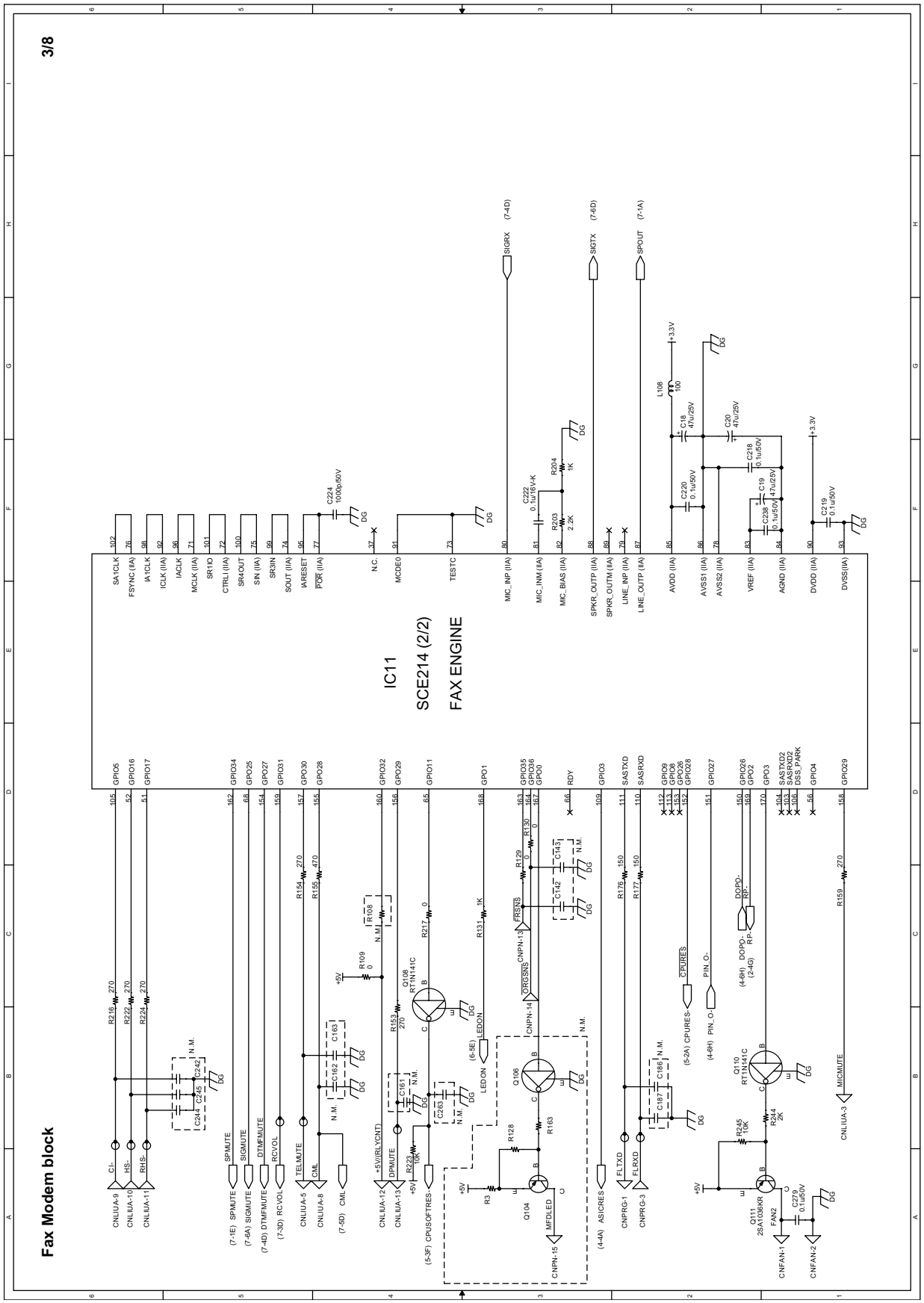
1. Main control block (1/8)



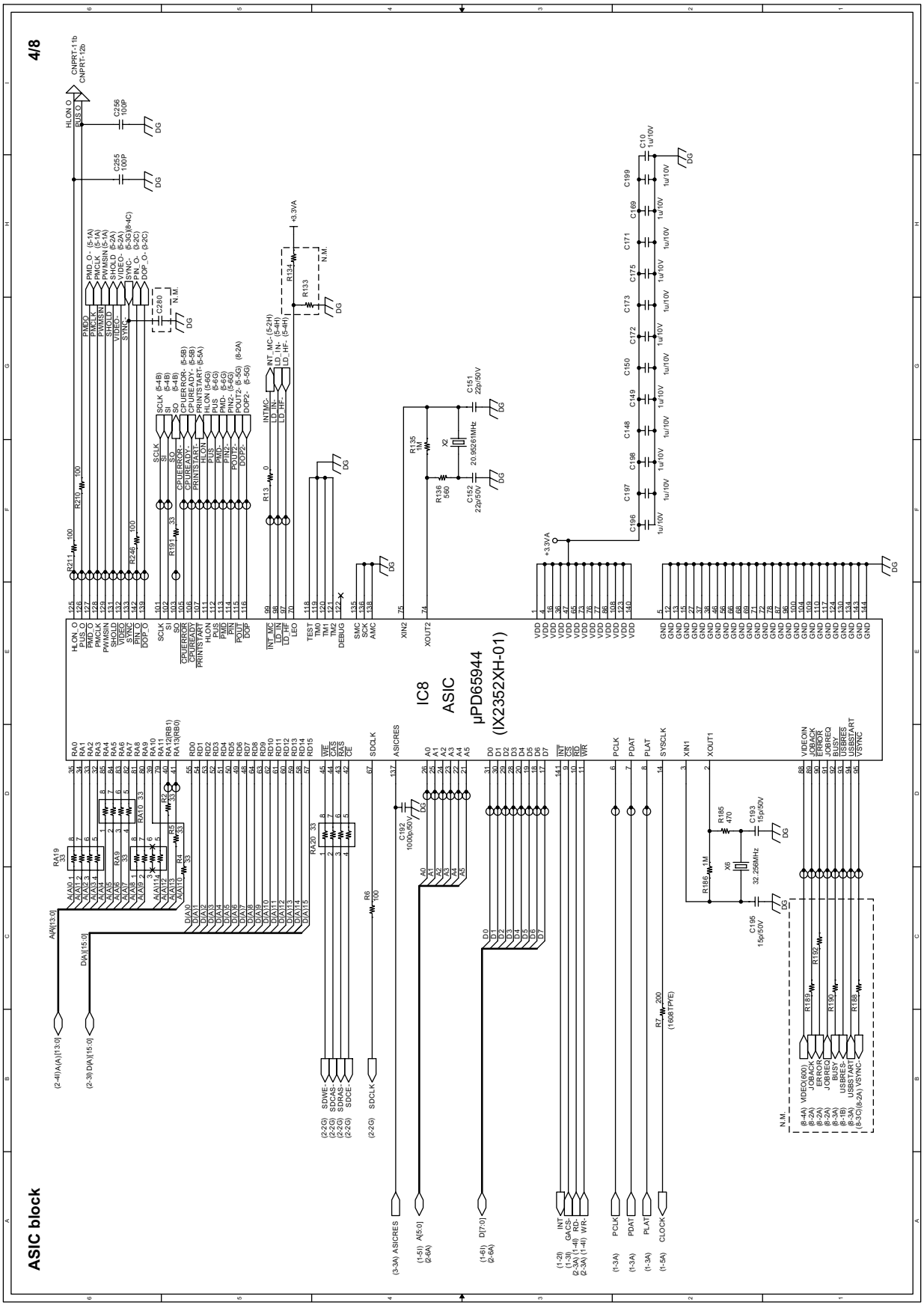
2. Memory block (2/8)



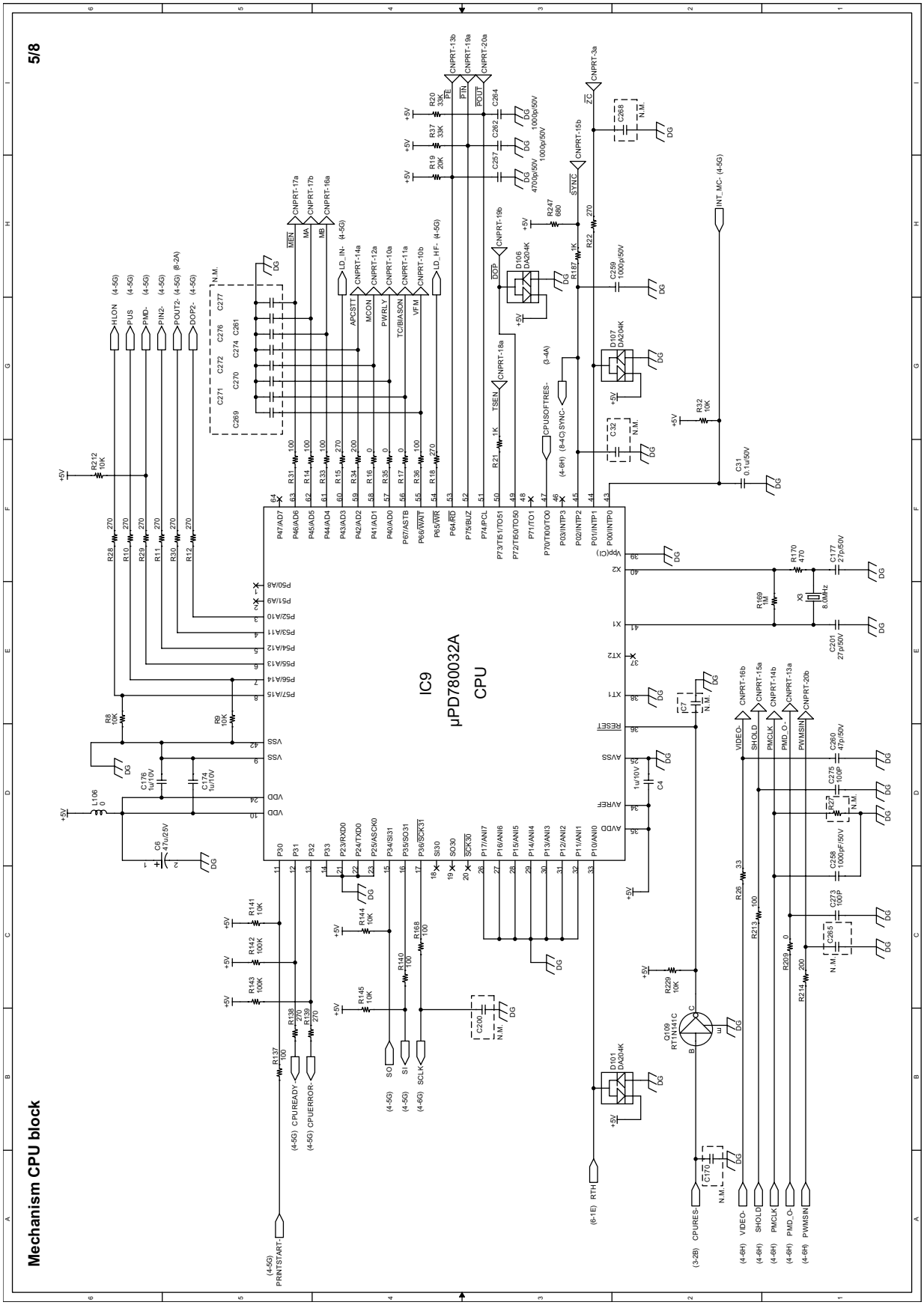
3. FAX Modem block (3/8)



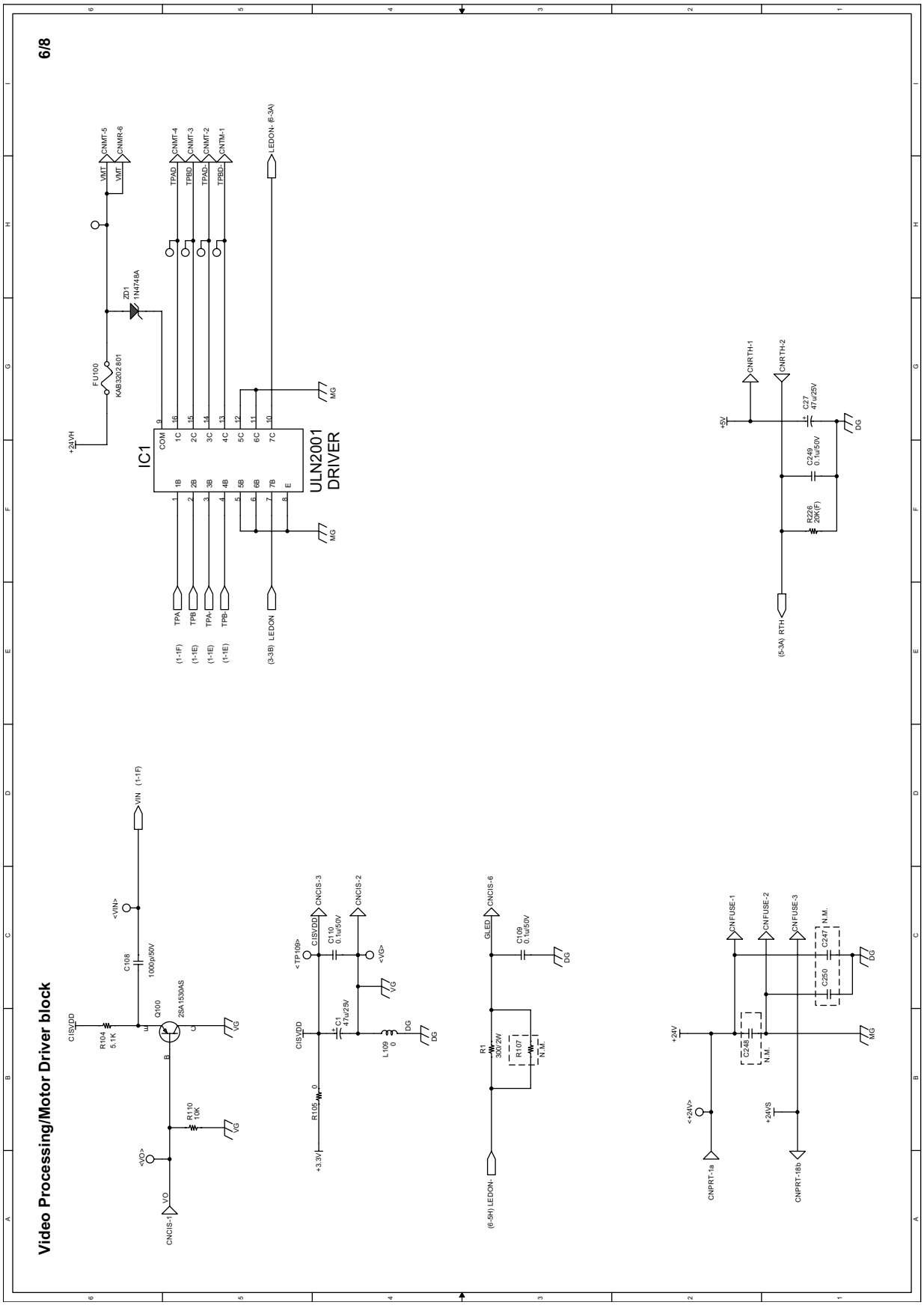
4. ASIC block (4/8)



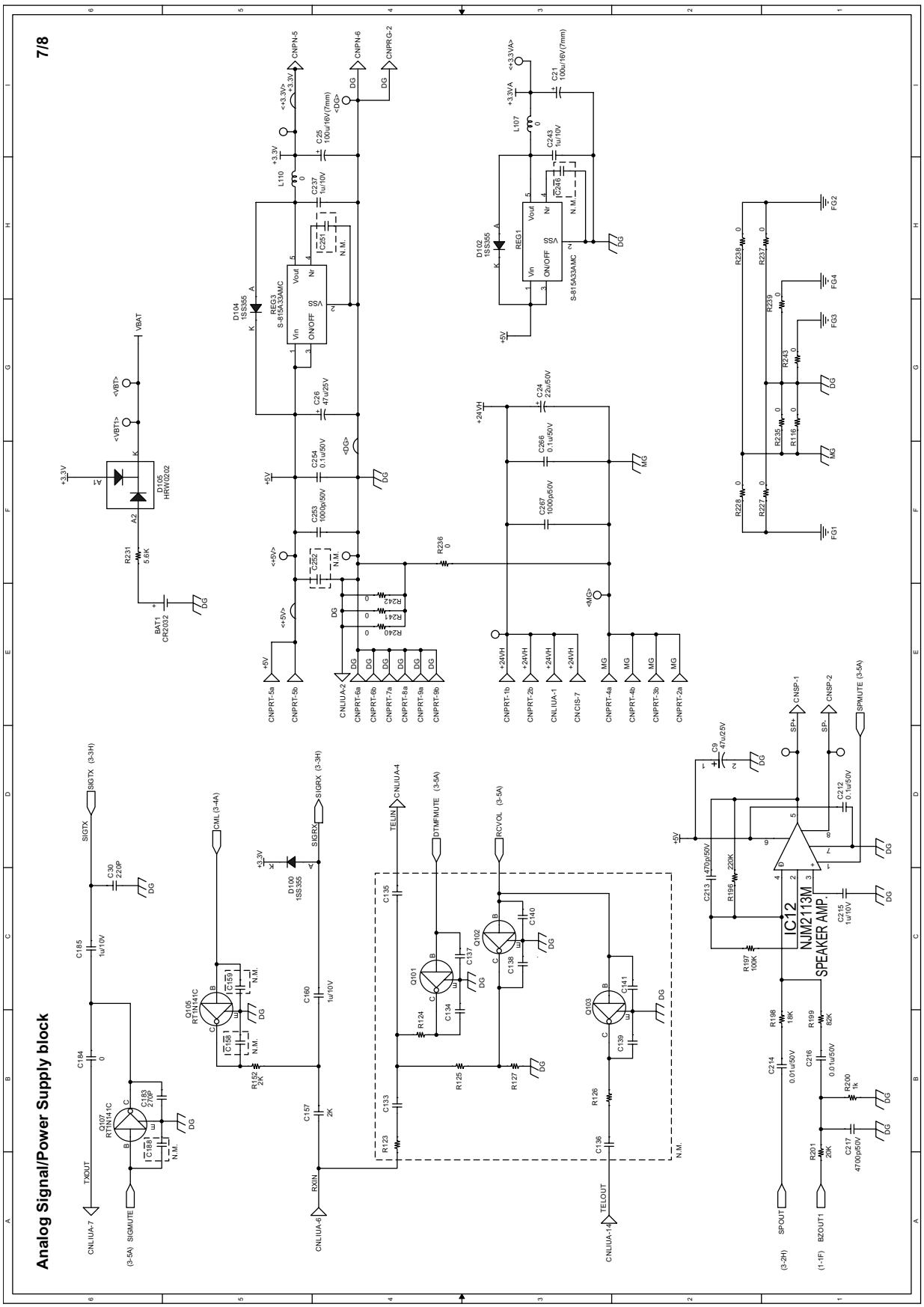
5. Mechanism CPU block (5/8)



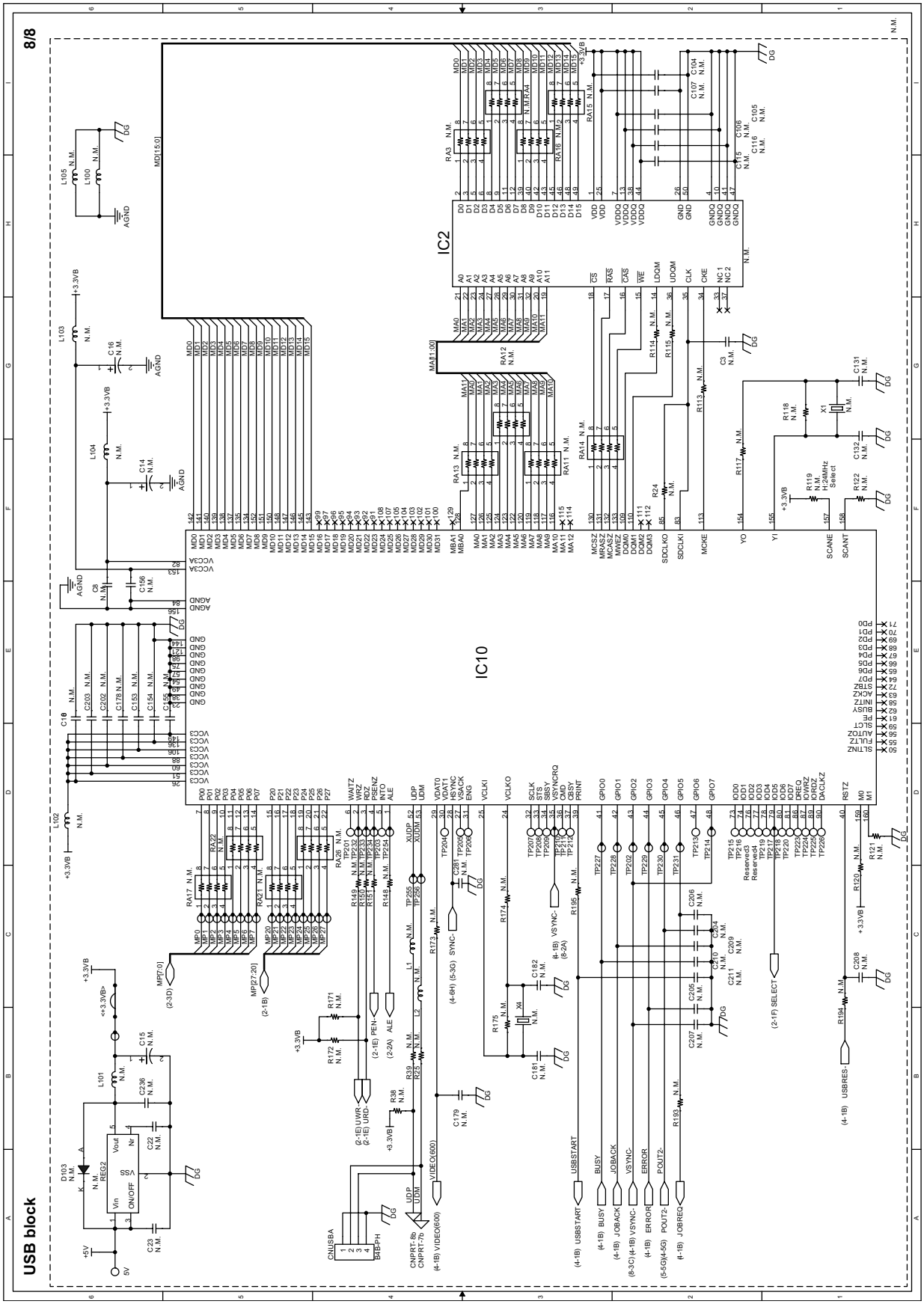
6. Video Processing/Motor Driver block (6/8)



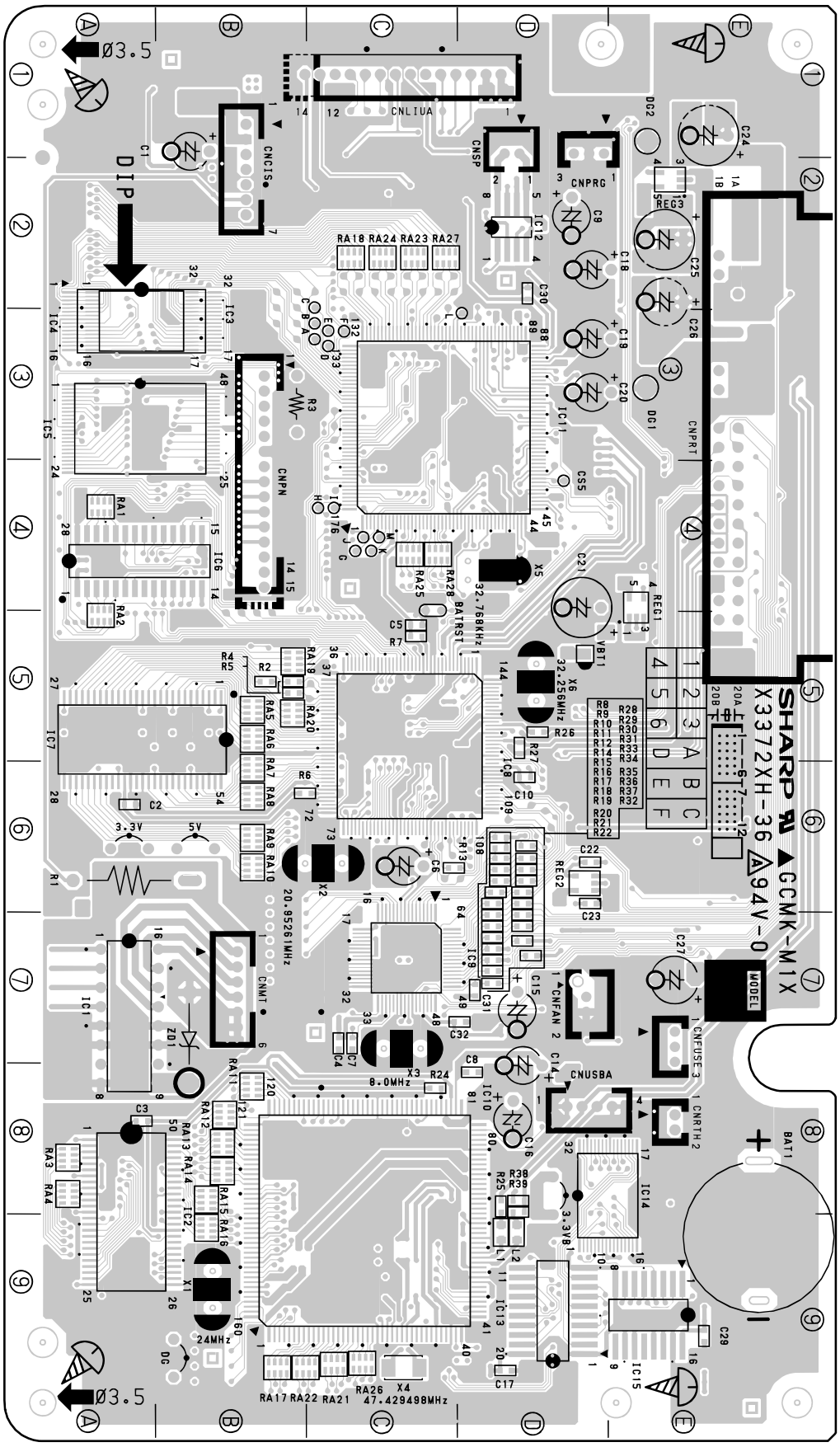
7. Analog Signal/Power Supply block (7/8)



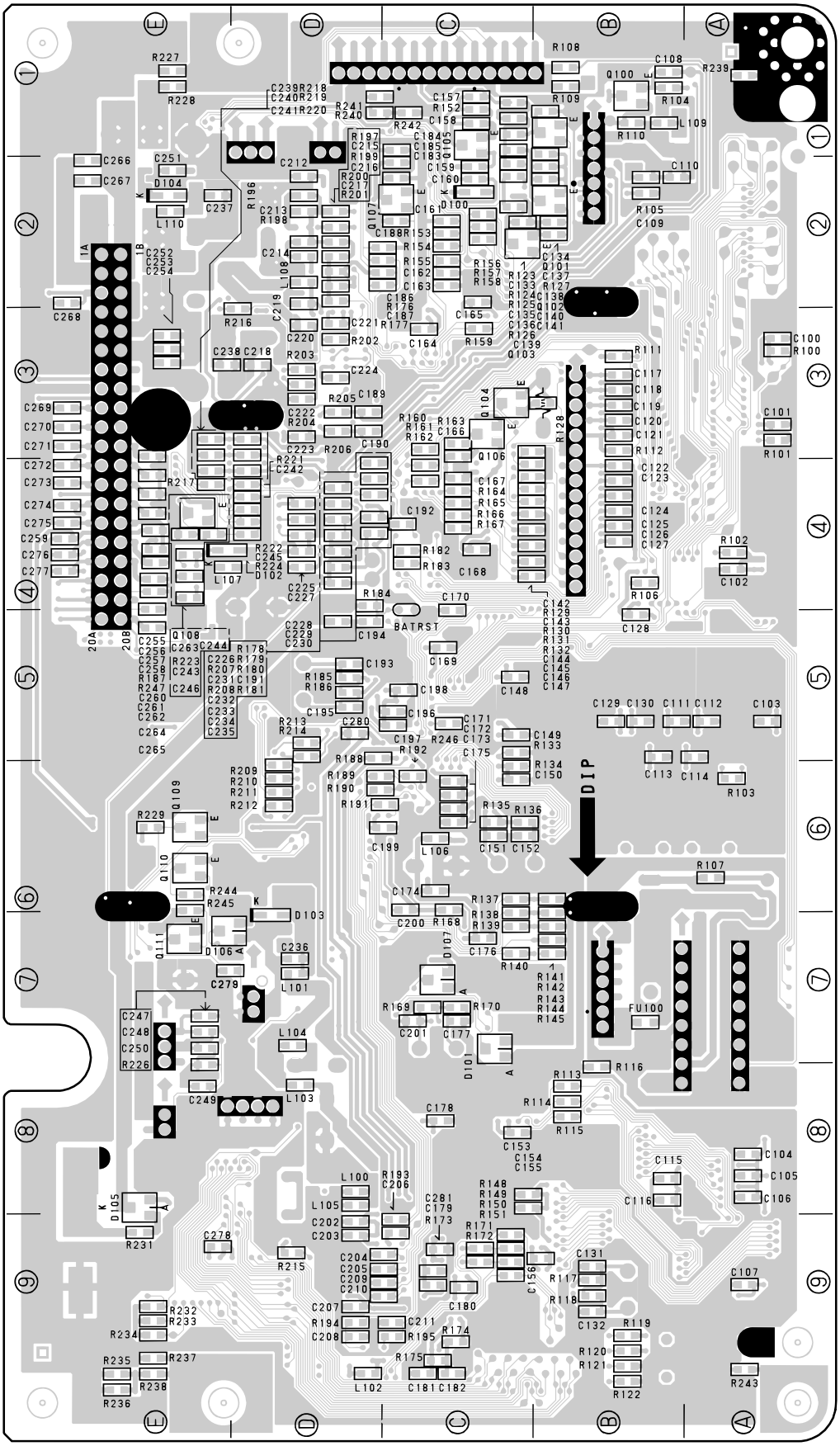
8. USB block (8/8)



9. Control PWB parts layout (Top side)

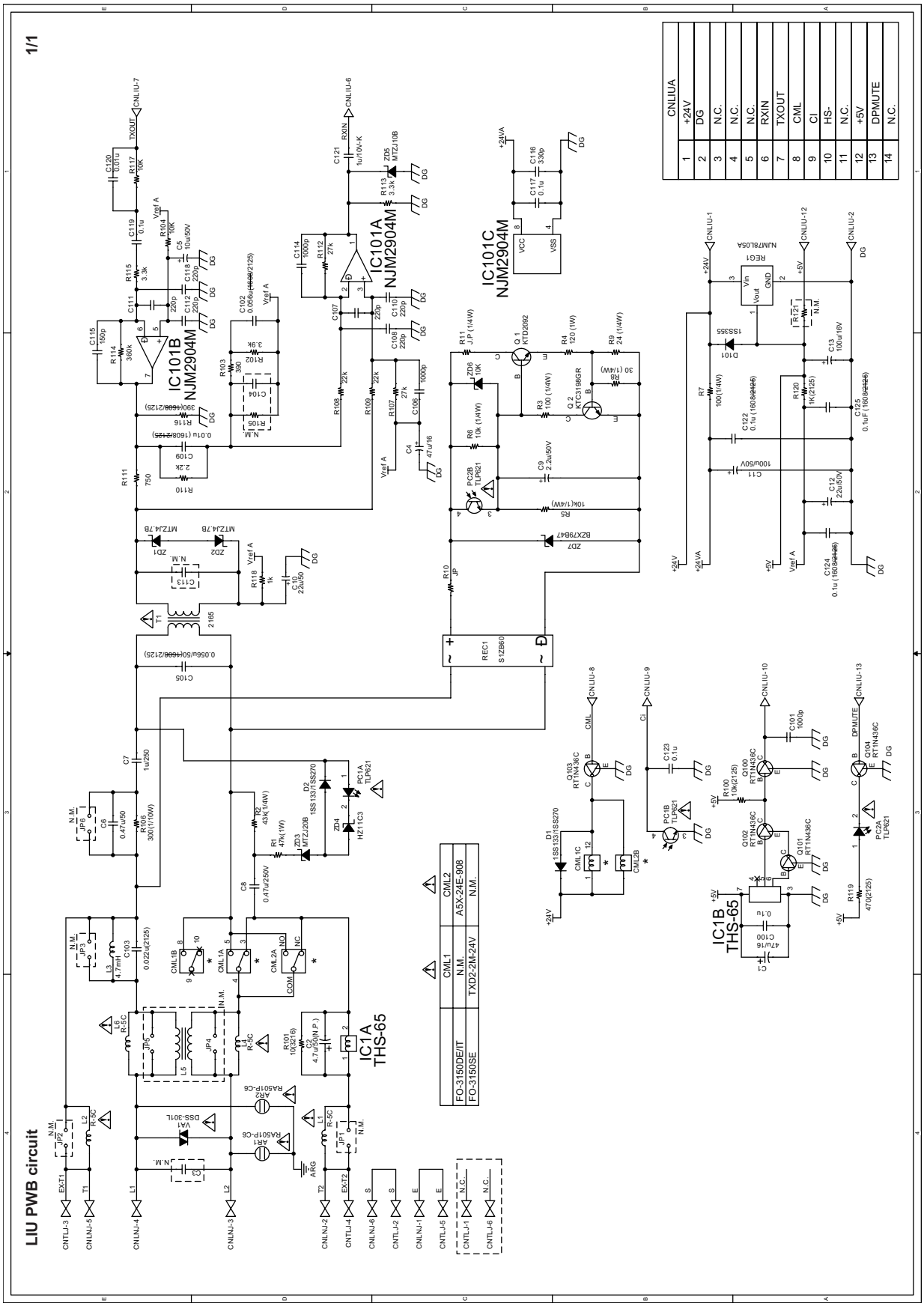


10. Control PWB parts layout (Bottom side)

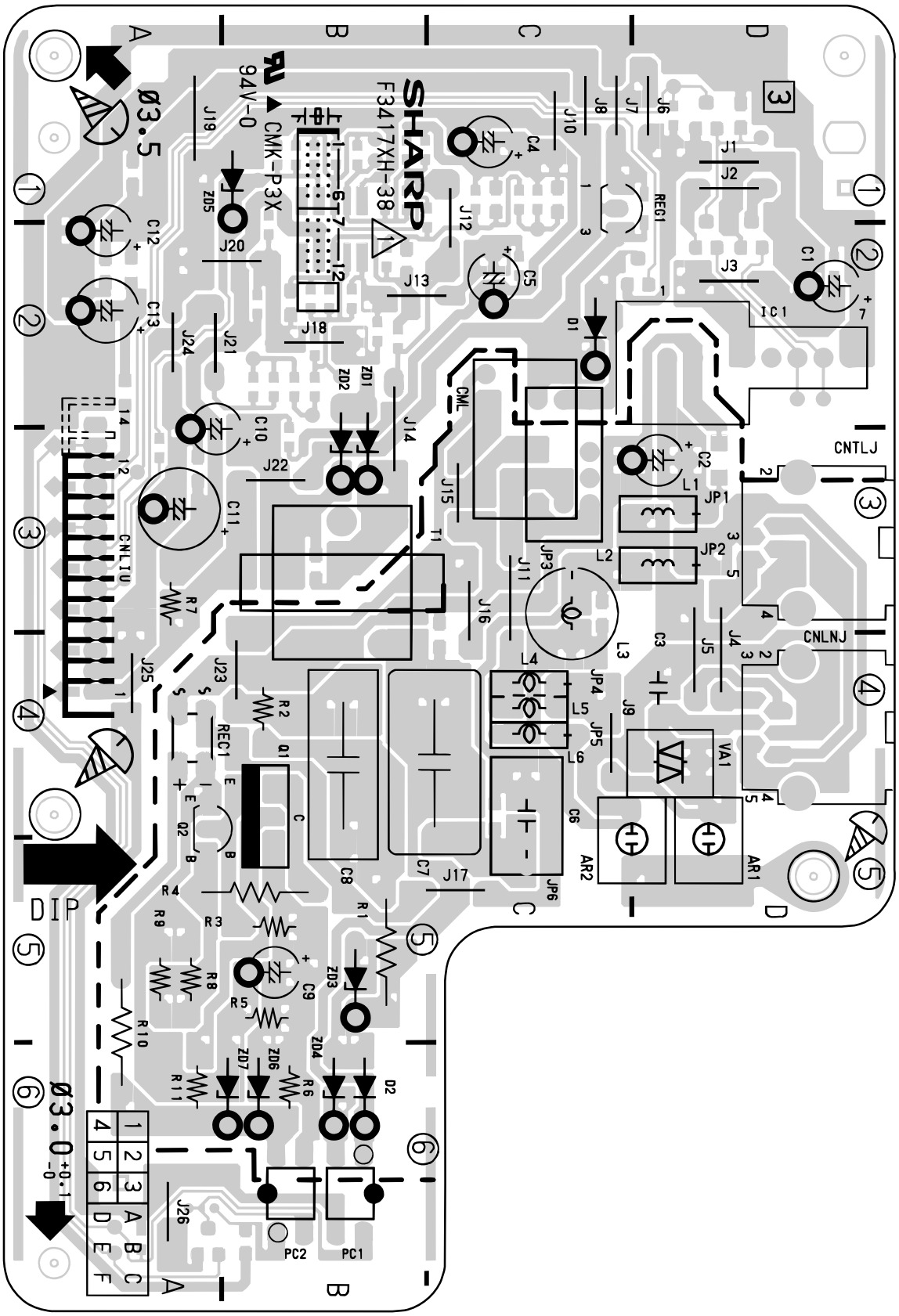


[2] LIU PWB circuit

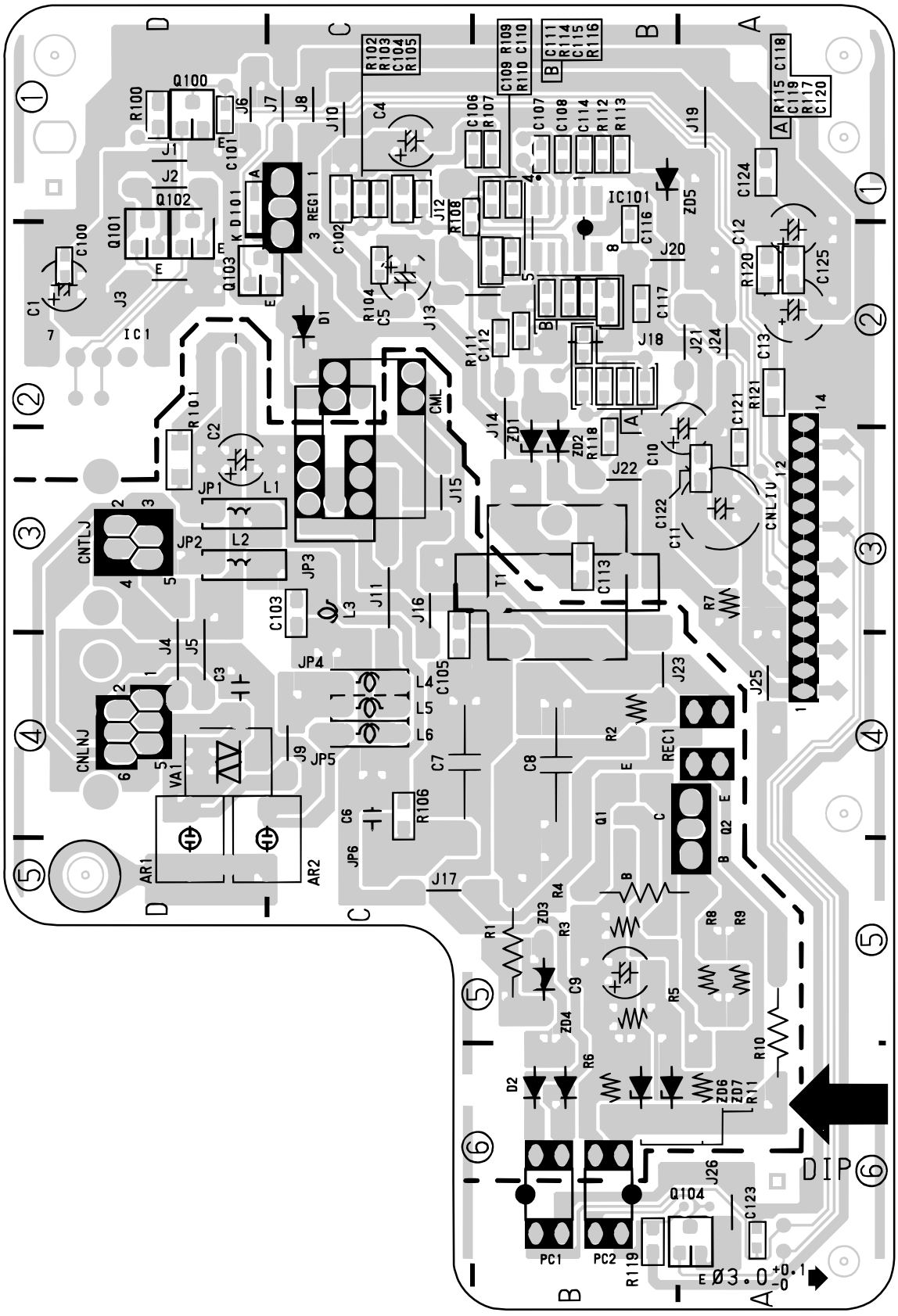
1. LIU PWB circuit (1/1)



2. LIU PWB parts layout (Top side)

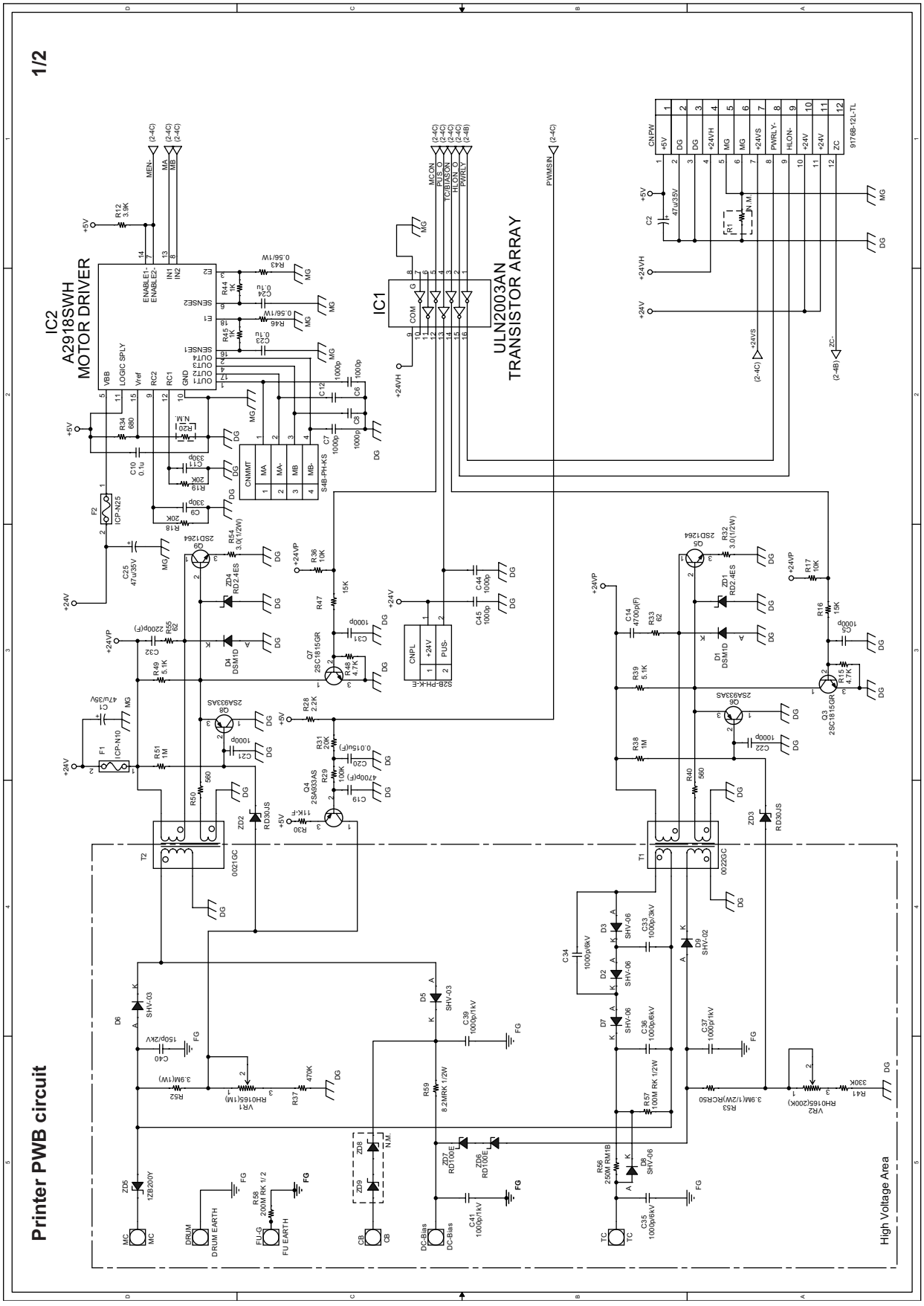


3. LIU PWB parts layout (Bottom side)

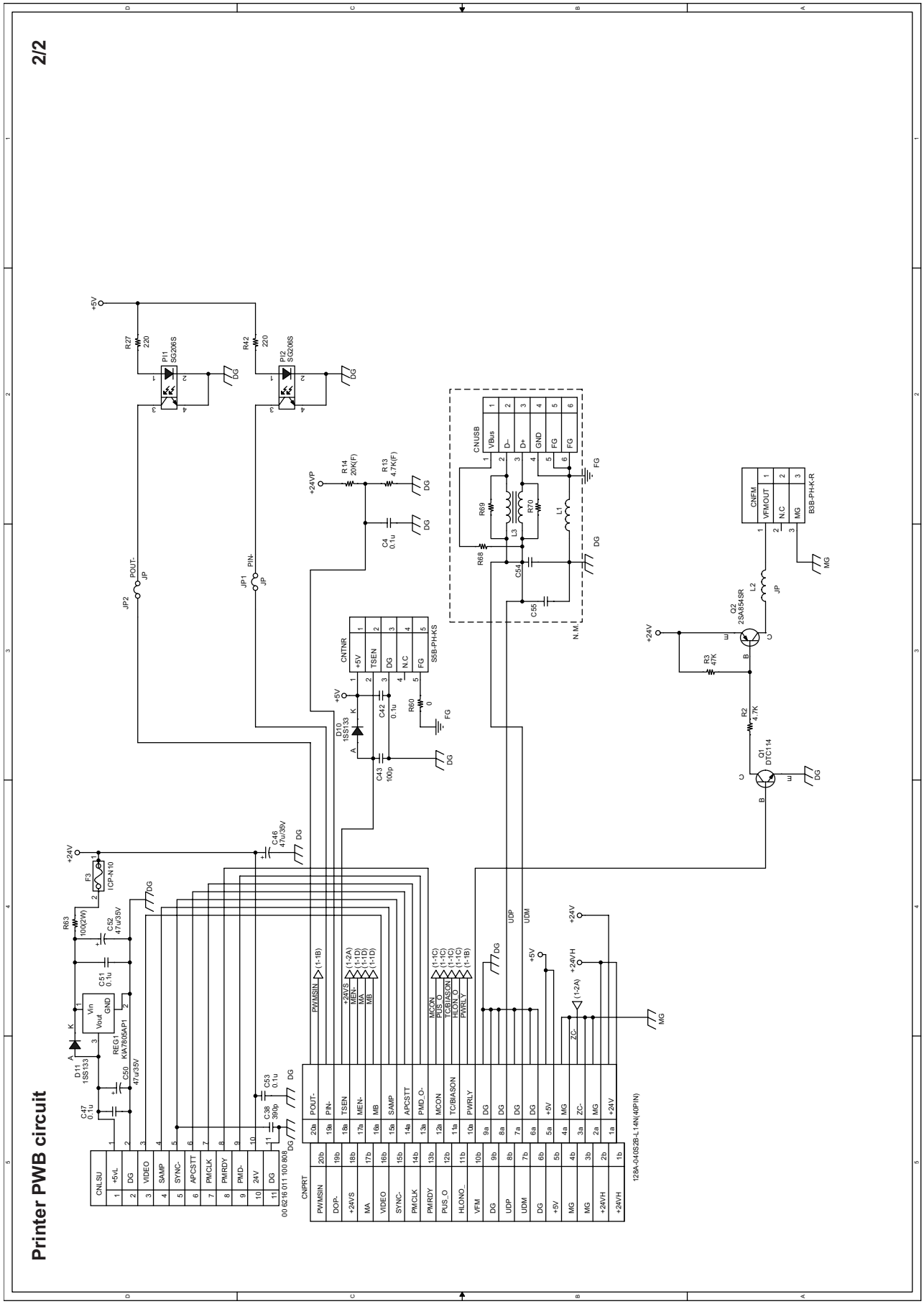


[3] Printer PWB circuit

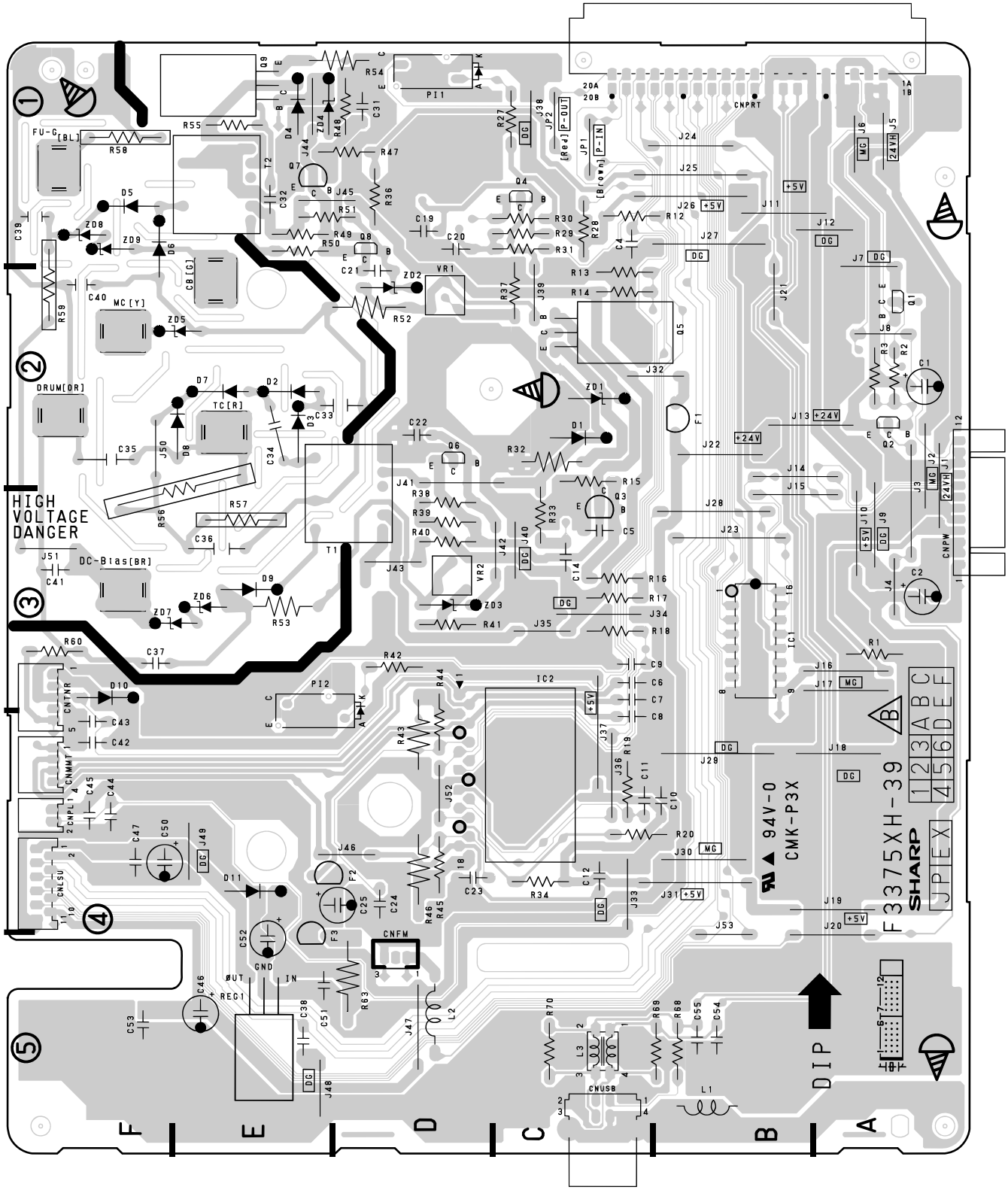
1. Printer PWB circuit (1/2)



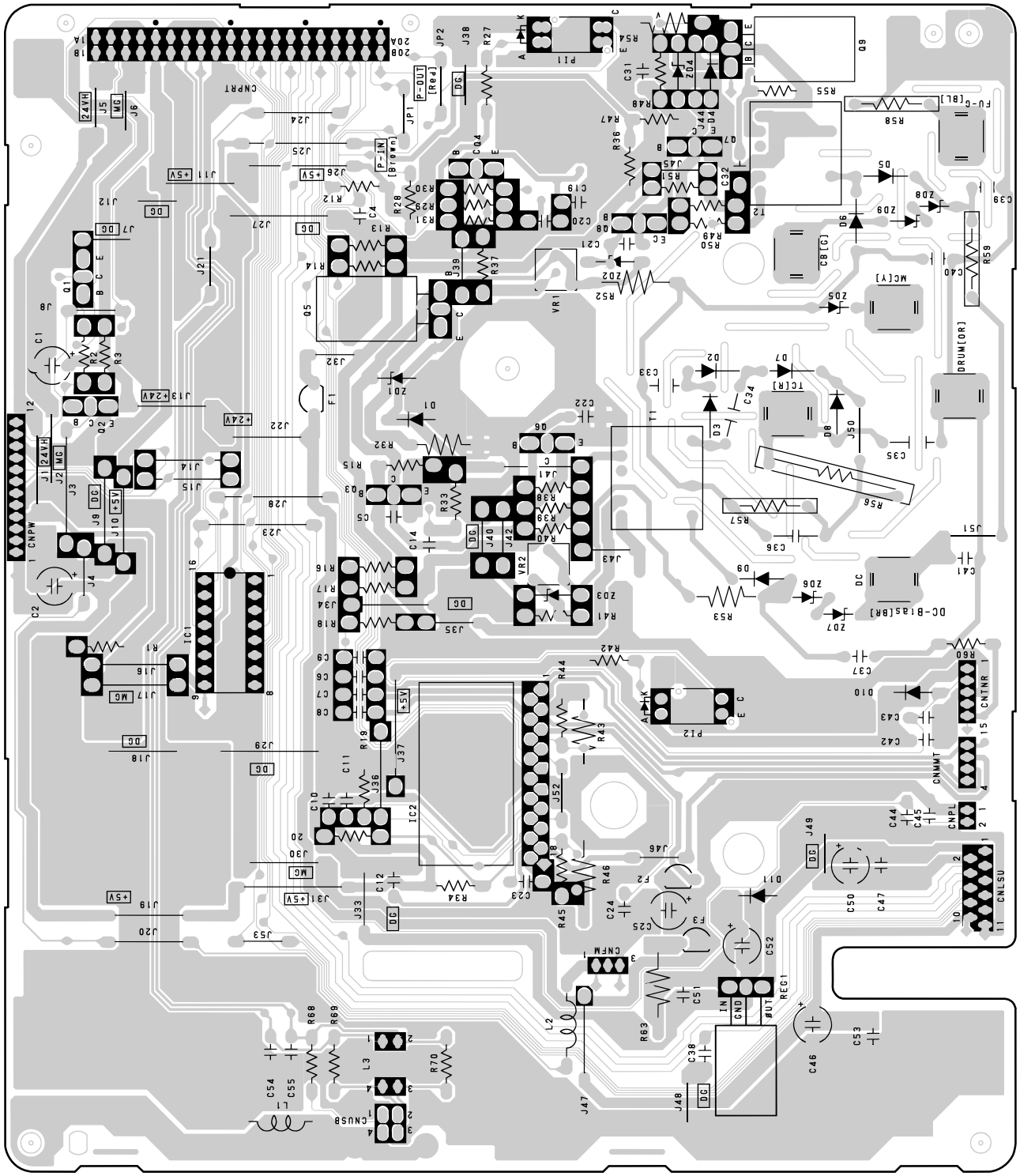
2. Printer PWB circuit (2/2)



3. Printer PWB parts layout (Top side)

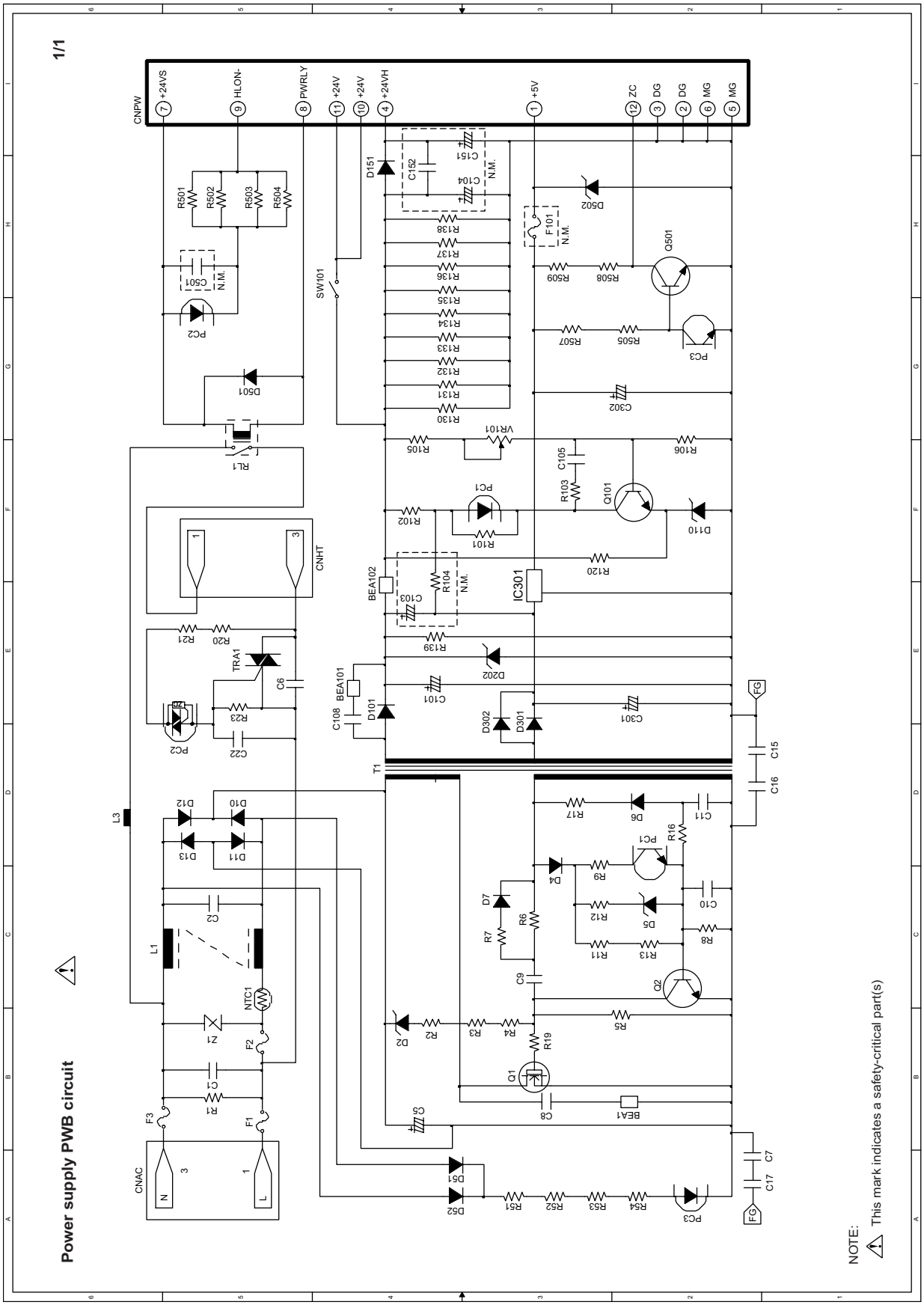


4. Printer PWB parts layout (Bottom side)

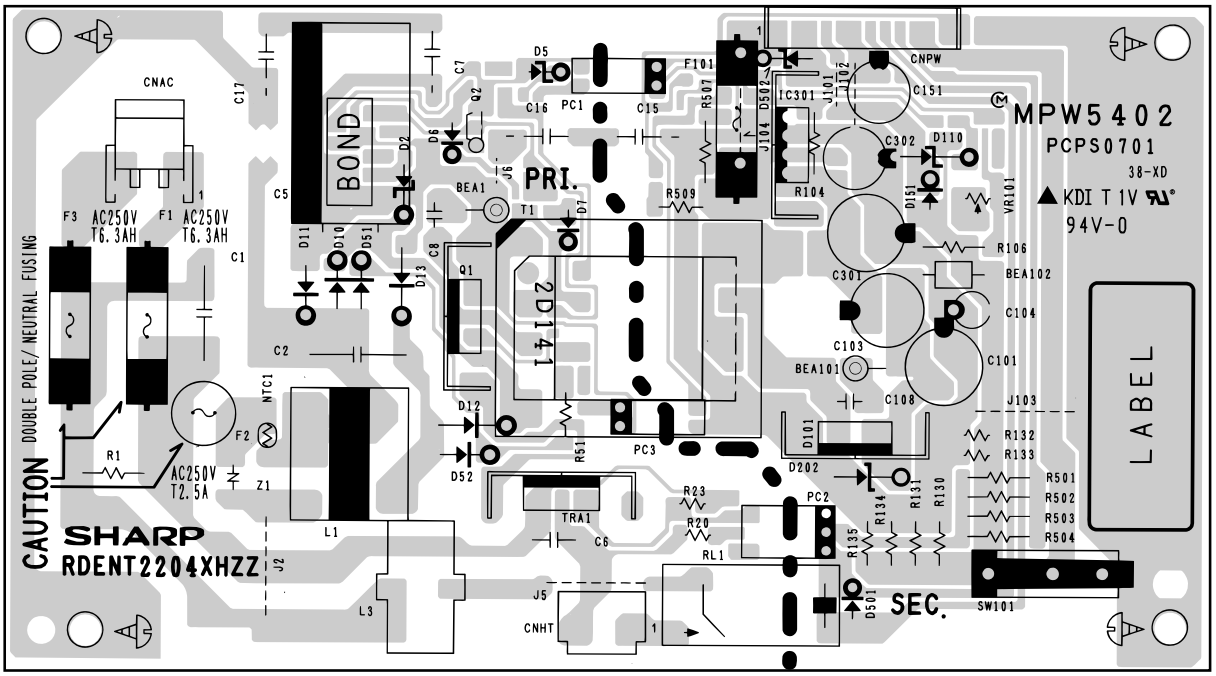


[4] Power supply PWB circuit

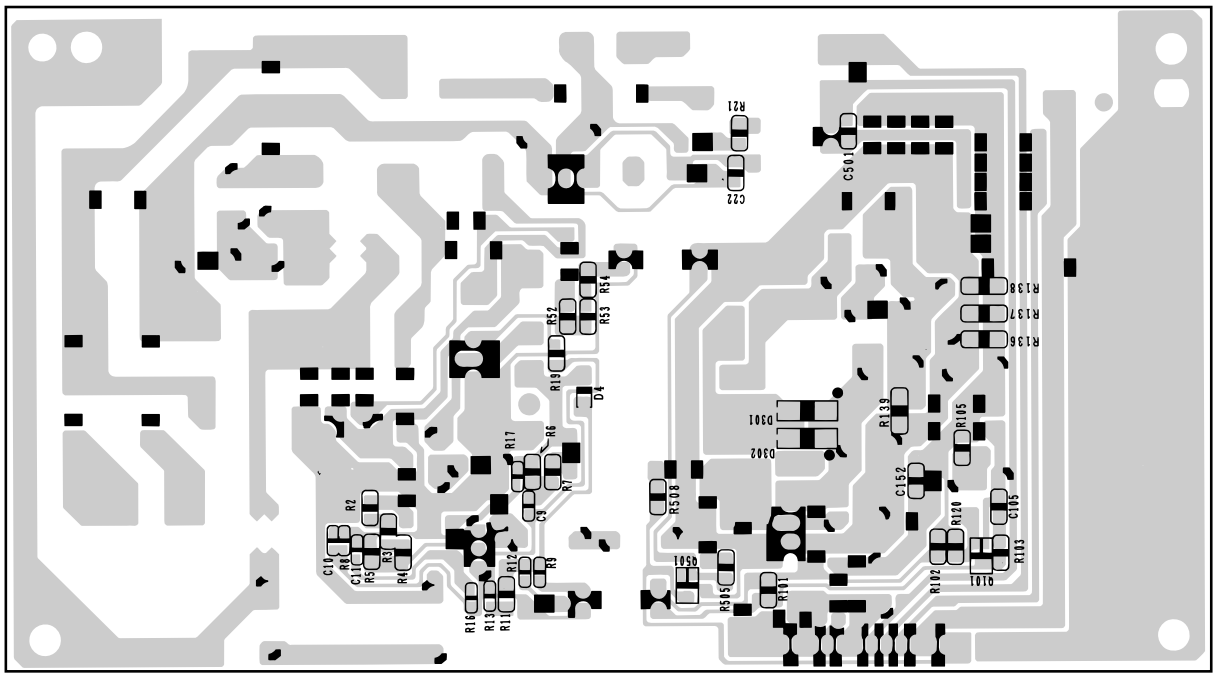
1. Power supply PWB circuit (1/1)



2. Power supply PWB parts layout (Top side)

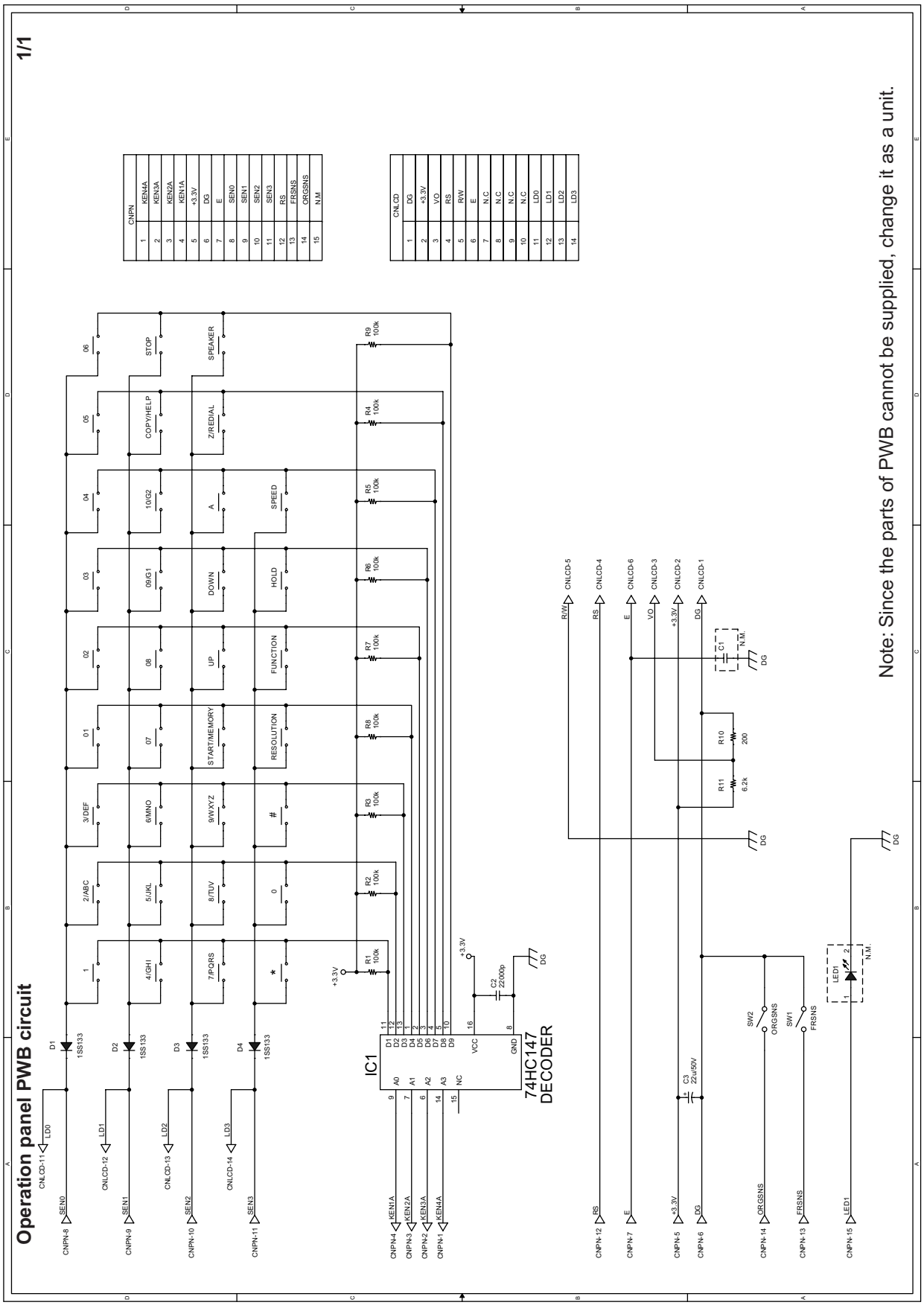


3. Power supply PWB parts layout (Bottom side)

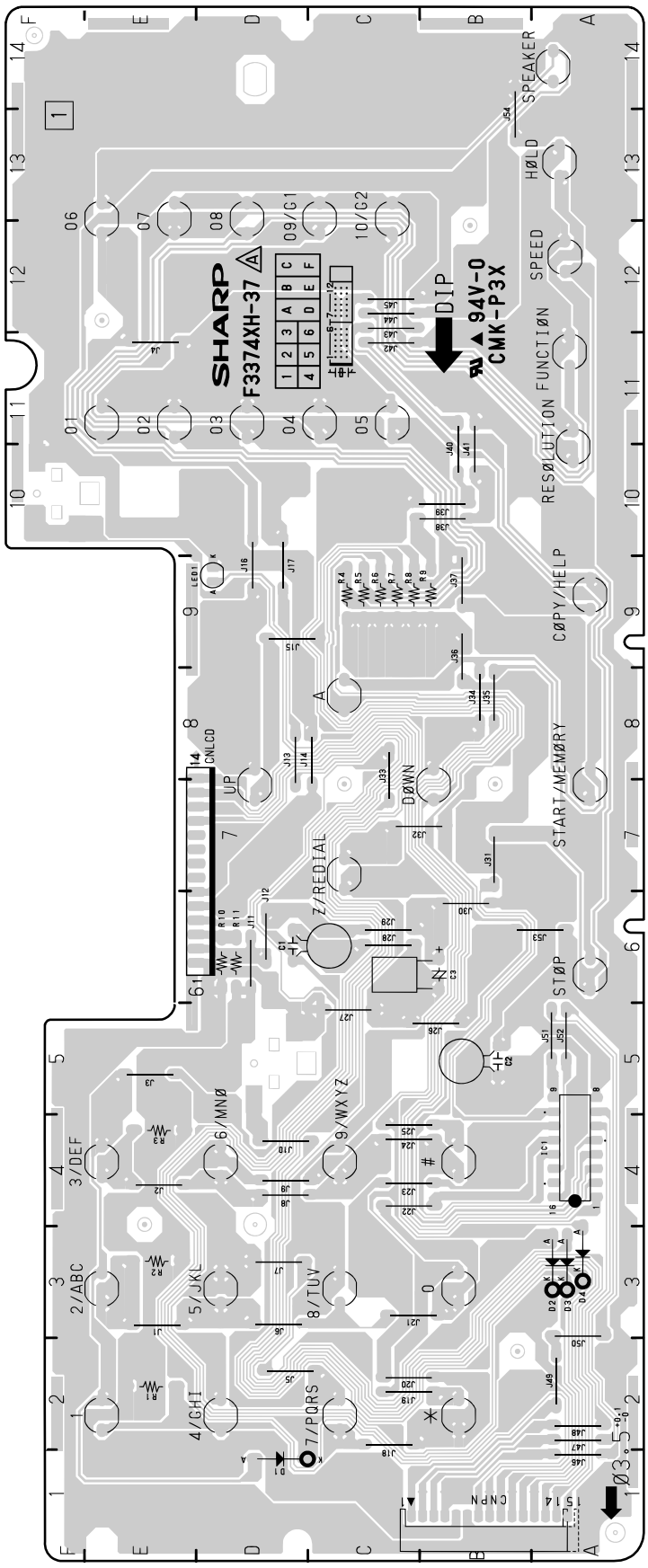


[5] Operation panel PWB circuit

1. Operation panel PWB circuit (1/1)



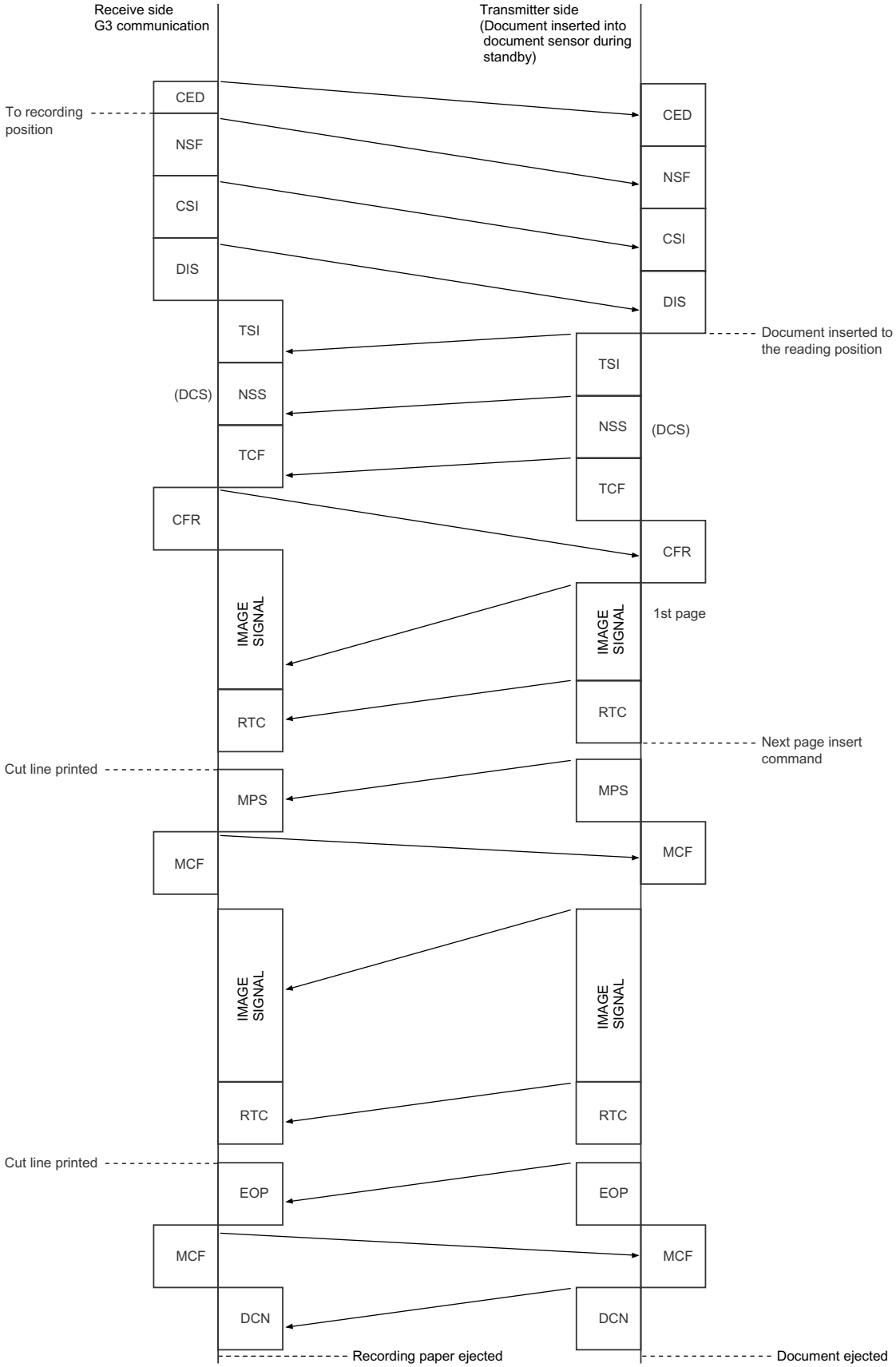
2. Operation panel PWB parts layout



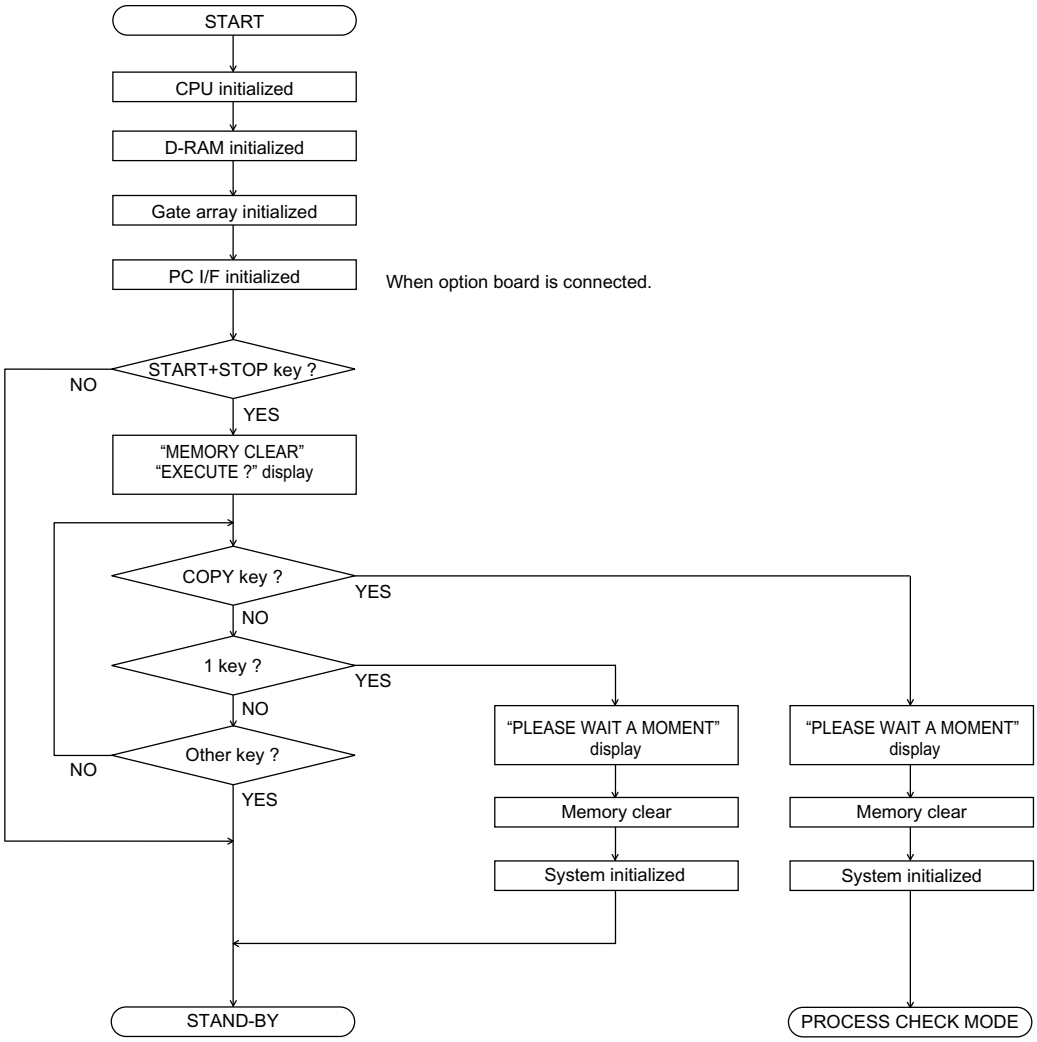
NOTE: Since the parts of PWB cannot be supplied, change it as a unit.

CHAPTER 7. OPERATION FLOWCHART

[1] Protocol



[2] Power on sequence



CHAPTER 8. OTHER

[1] Service tools

1. List

NO.	PARTS CODE	DESCRIPTION	QTY	PRICE RANK
1	DUNT-232DSCZZ	Extension board unit, cables and etc.	1	CP

1.1. CONTROL EXTENSION BOARD

NOTE: Because there is no handset in this model, it is unnecessary to connect the extension hook switch cable with the CNHS2 (2 pin).

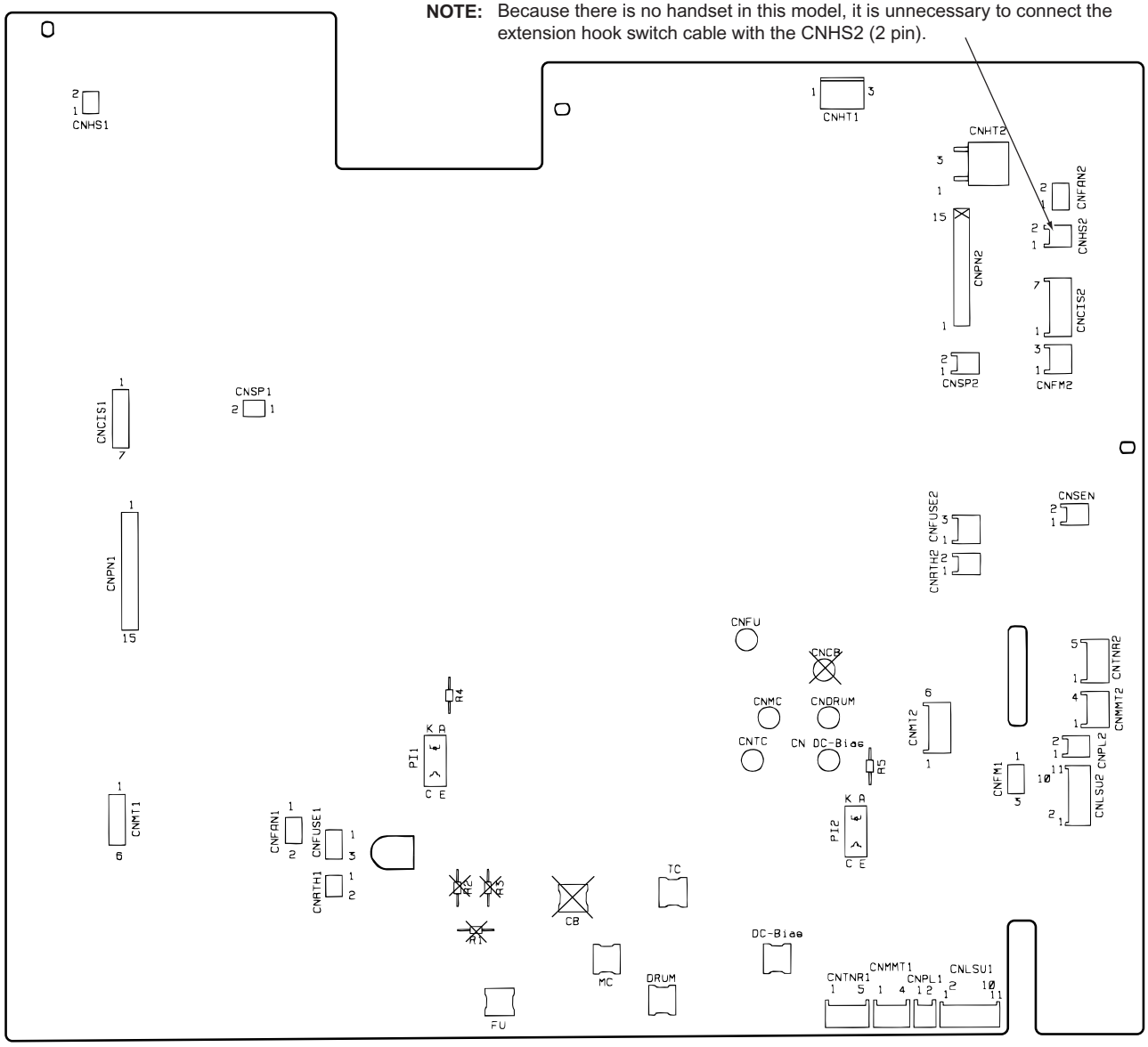


Fig. 1

2. Description

2.1. Extension board unit

1. Remove the LIU PWB, Control PWB and Bottom board unit (Printer and Power supply PWB) from this unit, and mount the extension board unit instead.
   - Before connecting the wiring to the extension board unit, set the test PWB switches to the fixed position.
2. The setting is as follows.

Extension board connection diagram

- **Caution!**

1) In the base machine (Printer PWB), take care that the cam may not nip the cable. Be also careful of sensor levers of PIN and POUT.
2) SW101 of the Power supply PWB is the interlock switch. When opening and closing the printer unit cover, manually switch ON/OFF.

   When opening cover: OFF (No operation required) (+24 V OFF)

   When closing cover: ON (Press the switch button) (+24 V ON)
3) Connect all cables.
4) High-pressure voltage is applied to all of FU-G, DRUM, MC, TC, and DC-Bias on the Printer PWB; Avoid contacting them with other components.
5) Into the connector, insert QCNWG451BSCZZ with its contact surface facing downward.
6) Be sure to connect the safety ground (AC cord) with the plate metal.

The recording paper sensor (Pin and Pout) are operated by OR of the mechanical unit switch and the test PWB switch. When performing installation in the machine unit, set the test PWB switches to the fixed position.

	Mechanical unit	PWB to be tested
————————	Actual operation with mechanical unit	
Recording paper sensor (Pin/Pout)	ON/OFF operation	OFF (Photo interrupter is interrupted.)
————————	PWB sensor check	
Recording paper sensor (Pin/Pout)	OFF	ON/OFF operation

* Recording paper: ON

No recording paper: OFF

Ref No.	Cable parts code	Description
CNCIS2	QCNWG439BSCZZ	EX. Cable, 7-7 PIN
CNPN2	QCNWG440BSCZZ	EX. Cable, 14-14 PIN
CNMT2	QCNWG442BSCZZ	EX. Cable, 6-6 PIN
CNSP2	QCNWG443BSCZZ	EX. Cable, 2-2 PIN
CNFUSE2	QCNWG444BSCZZ	EX. Cable, 3-3 PIN
CNHT2	QCNWG445BSCZZ	EX. Cable, 3-3 PIN
CN FU	QCNWG446BSCZZ	EX. Cable, 1-1 PIN
CN MC	QCNWG447BSCZZ	EX. Cable, 1-1 PIN
CN DRUM	QCNWG448BSCZZ	EX. Cable, 1-1 PIN
CN TC	QCNWG449BSCZZ	EX. Cable, 1-1 PIN
CN Dc–Bias	QCNWG450BSCZZ	EX. Cable, 1-1 PIN
CNLSU2	QCNWG451BSCZZ	EX. Cable, 11-11 PIN
CNSEN	QCNWG452BSCZZ	EX. Cable, 2-2 PIN
CNMMT2	QCNWG453BSCZZ	EX. Cable, 4-4 PIN
CNTNR2	QCNWG454BSCZZ	EX. Cable, 5-5 PIN
CNPL2	QCNWG455BSCZZ	EX. Cable, 2-2 PIN
CNFM2	QCNWG456BSCZZ	EX. Cable, 3-3 PIN
CNFAN2	QCNWG457BSCZZ	EX. Cable, 2-2 PIN
CNRTH2	QCNWG458BSCZZ	EX. Cable, 2-2 PIN
CNHS2**(NOTE)**	QCNWG459BSCZZ	EX. Cable, 2-2 PIN

NOTE: Because there is no handset in this model, it is unnecessary to connect the extension hook switch cable with the CNHS2 (2pin).

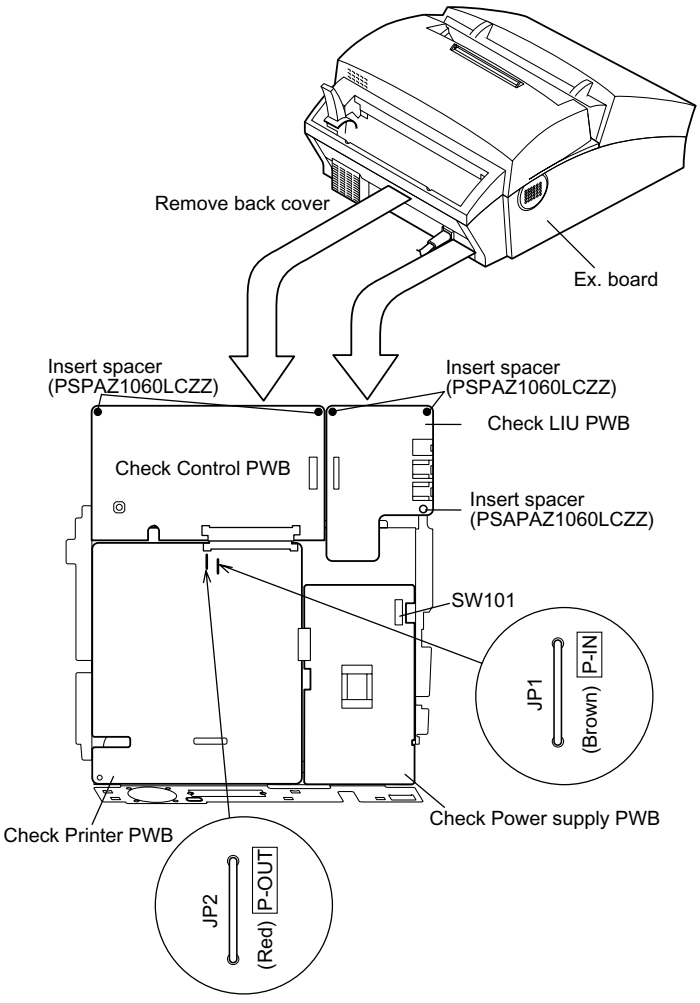


Fig. 2

NO.	PARTS CODE	DESCRIPTION	REF NO.	Q'TY	PRICE RANK
1	QCNCM0672FCZZ	CONNECTOR 3pin	CNHT1	1	AB
2	QCNCM2401SC0B	CONNECTOR 2pin	CNSP1	1	AA
3	QCNCM2401SC0C	CONNECTOR 3pin	CNFM1	1	AB
4	QCNCM2442SC0B	CONNECTOR 2pin	CNHS1	1	AB
5	QCNCM2447SC0B	CONNECTOR 2pin	CNHS2	1	AA
6	QCNCM2473SC0B	CONNECTOR 2pin	CNSP2	1	AA
7	QCNCM2473SC0C	CONNECTOR 3pin	CNFM2	1	AC
8	QCNCM7014SC1D	CONNECTOR 14pin	CNPN1/ CNPN2	2	AC
9	QCNCM2498SC0B	CONNECTOR 2pin	CNFAN1/ 2	2	AB
10	QCNCM2609SC0B	CONNECTOR 2pin	CNHT2	1	AD
11	QCNCM7014SC0B	CONNECTOR 2pin	CNRTH1	1	AD
12	QCNCM7014SC0C	CONNECTOR 3pin	CNFUSE1	1	AA
13	QCNCM7014SC0F	CONNECTOR 6pin	CNMT1	1	AB
14	QCNCM7014SC0G	CONNECTOR 10pin	CNCIS1	1	AB
15	QCNCM7022SC0B	CONNECTOR 2pin	CNRTH2	1	AB
16	QCNCM7022SC0C	CONNECTOR 3pin	CNFUSE2	1	AB
17	QCNCM7022SC0D	CONNECTOR 4pin	CNMMT1, CNMMT2	2	AC
18	QCNCM7022SC0E	CONNECTOR 5pin	CNTNR1, CNTNR2	2	AB
19	QCNCM7022SC0F	CONNECTOR 6pin	CNMT2	1	AB
20	QCNCM7022SC0G	CONNECTOR 10pin	CNCIS2	1	AC
21	QCNCM704BAF04	CONNECTOR 2pin	CNSEN	1	AB
22	QCNCM704BAF06	CONNECTOR 2pin	CNPL1, CNPL2	2	AC
23	QCNCWZK11AWZZ	CONNECTOR 11pin	CNLSU1, CNLSU2	2	AG
24	QTANN2046SCZZ	TERMINAL	FU, MC, DRUM, TC, DC-BIAS	5	AC
25	VHPSG206S//-1	PHOTO TRANSISTOR	PI1, PI2	2	AG
26	VRD-HT2EY221J	RESISTOR (1/4W 220Ω ±5%)	R4, R5	2	AA
27	QCNWG446BSCZZ	FU-G CABLE,1-1pin	CNFU	1	AP
28	QCNWG447BSCZZ	MC CABLE,1-1pin	CNMC	1	AP
29	QCNWG448BSCZZ	DRUM CABLE,1-1pin	CNDRUM	1	AP
30	QCNWG449BSCZZ	TC CABLE,1-1pin	CNTC	1	AP
31	QCNWG450BSCZZ	DC-BIAS CABLE,1-1pin	CNDC-BIAS	1	AP
32	QCNWG439BSCZZ	CIS CABLE 7-7pin	CNCIS2	1	AW
33	QCNWG440BSCZZ	PANEL CABLE 14-14pin	CNPN2	1	BA
34	QCNWG442BSCZZ	MOTOR CABLE 6-6pin	CNMT2	1	AU
35	QCNWG443BSCZZ	SPEAKER CABLE 2-2pin	CNSP2	1	AM
36	QCNWG444BSCZZ	FUSE CABLE 3-3pin	CNFUSE2	1	AP
37	QCNWG445BSCZZ	HEATER CABLE 3-3pin	CNHT2	1	AP
38	QCNWG451BSCZZ	LSU CABLE 11-11pin	CNLSU2	1	AQ
39	QCNWG452BSCZZ	SENSOR CABLE 2-2pin	CNSEN	1	AX
40	QCNWG453BSCZZ	MAIN MOTOR CABLE 4-4pin	CNMMT2	1	AR
41	QCNWG454BSCZZ	TONER CABLE 5-5pin	CNTNR2	1	AR
42	QCNWG455BSCZZ	SOLENOID CABLE 2-2pin	CNPL2	1	AM
43	QCNWG456BSCZZ	FAN CABLE 3-3pin	CNFM2	1	AP
44	QCNWG457BSCZZ	FAN CABLE 2-2pin	CNFAN2	1	AN
45	QCNWG458BSCZZ	THERMISTER CABLE 2-2pin	CNRTH2	1	AM
46	QCNWG459BSCZZ	HOOK SWITCH CABLE 2-2pin	CNHS2 **(NOTE)**	1	AM
47	XHBSE30P06000	SCREW (3X6)		7	AA
48	GLEGG2075SCZZ	RUBBER LEG		2	AK
49	LPLTM3083SCZZ	CHASSIS		1	AP
50	PSPAZ1060LCZZ	SPACER		5	AB

NOTE: Because there is no handset in this model, it is unnecessary to connect the extension hook switch cable with the CNHS2 (2pin).

[2] Rewriting the Flash ROM

Refer to the Technical Manual of UX-A450DE.

1) Remove screw and remove ROM cover. (Hook x 5)

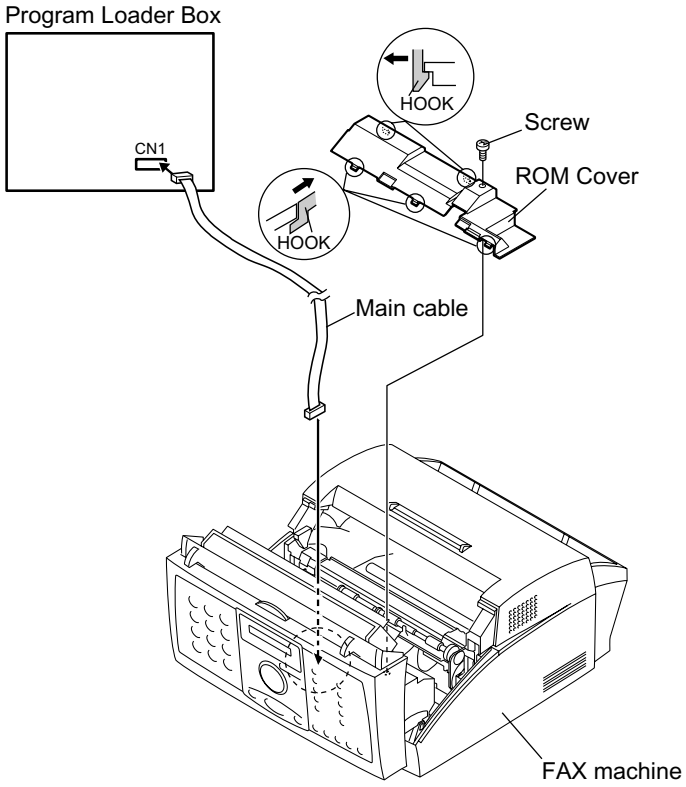


Fig. 3

2) Connect one end of Main Cable to the connector of the control PWB connector for the FAX machine (CNPRG) (refer to Fig.4) and the other end to CN1 of Program loader BOX.

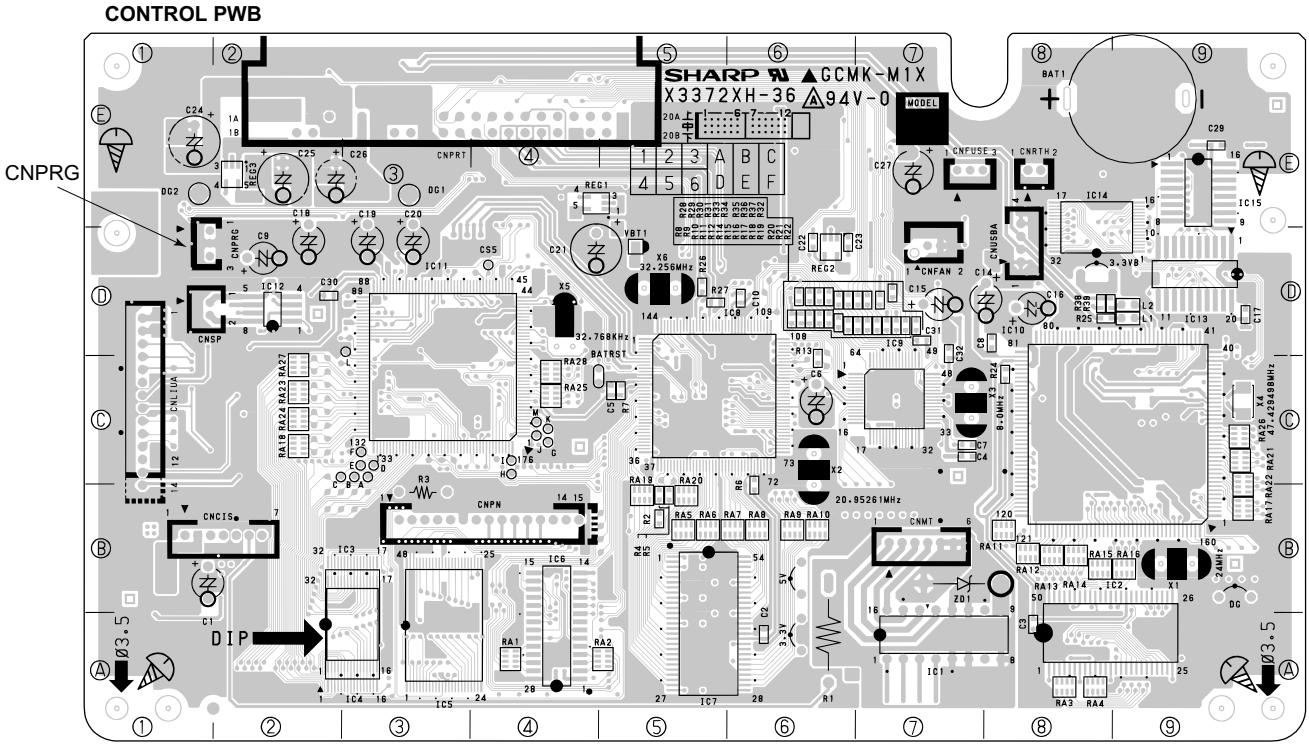


Fig. 4 Connection of Main Cable

MEMO

SHARP PARTS GUIDE

MODEL FO-3150

MODEL	SELECTION CODE	DESTINATION
FO-3150	DE	Germany
FO-3150	IT	Italy
FO-3150	SE	Sweden

CONTENTS

1 Cabinet, etc.

2 Operation panel unit

3 Document guide upper unit

4 Drive unit

5 Scanner frame unit

6 Printer frame

7 Upper frame

8 Lower frame

9 Fusing unit

10 Packing material & Accessories

11 Control PWB unit

12 LIU PWB unit

13 Printer PWB unit

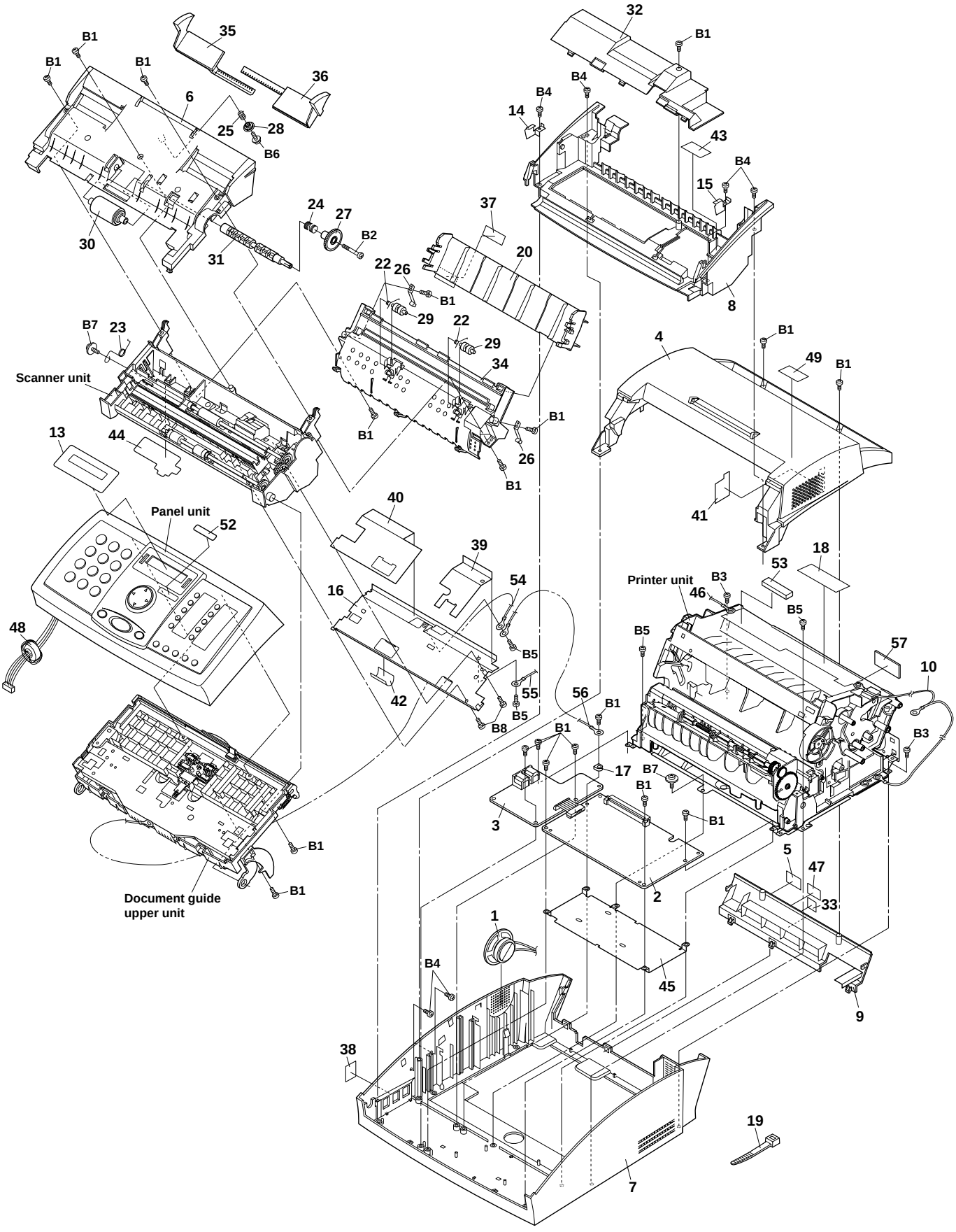
14 Power supply PWB unit

15 Operation panel PWB unit

■ Index

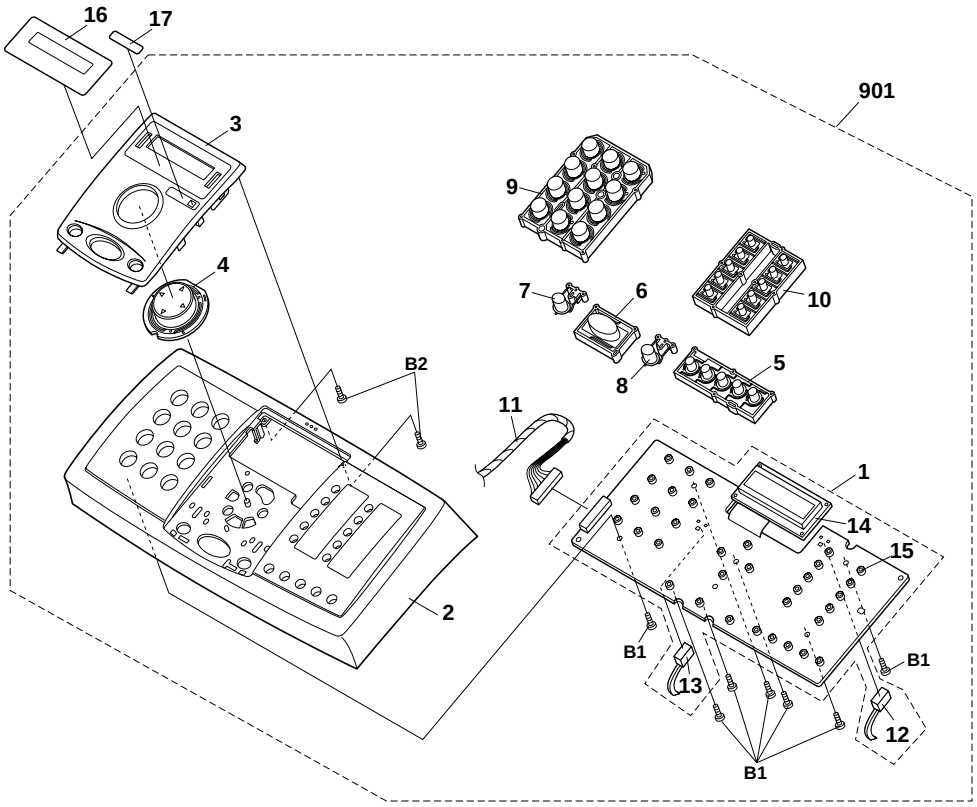
Because parts marked with "⚠" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specifi to the product specification.

[1] Cabinet, etc.

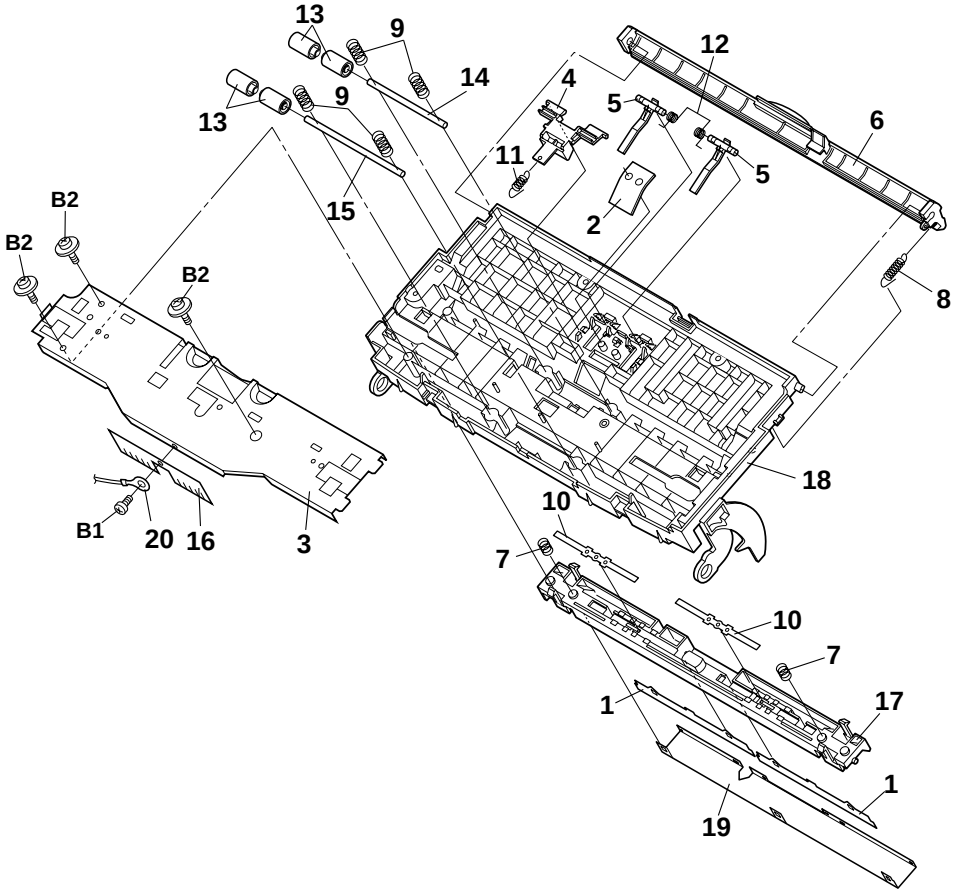


NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[1] Cabinet,etc.					
1	CCNWN414BXH01	AR		C	Speaker ass'y
2	DCEKC688SXHZZ	CA		E	Control PWB unit [DE]
	DCEKC880SXHZZ	CA	N	E	Control PWB unit [IT]
	DCEKC787SXHZZ	CA		E	Control PWB unit [SE]
3	DCEKL221DXH01	BN		E	LIU PWB unit [DE/IT]
	DCEKL221DXH02	BP		E	LIU PWB unit [SE]
4	GCABA2350XHZB	BA		D	Upper cabinet
5	TLABH243HXHZZ	AG	N	D	Laser class 1 label
6	GCABB2351XHZC	AX		C	Document guide lower
7	GCABC2352XHZE	AW		D	Bottom cabinet
8	GCABD2353XHYB	AX		D	Inner cabinet
9	GCOVA2418XHZB	AR		D	Back cover
10	QCNWN448ASCZZ	AQ	N	C	Printer earth cable
13	HPNLH2435XHZA	AL		C	Decoration panel [DE]
	HPNLH2435XHZD	AL	N	C	Decoration panel [IT]
	HPNLH2435XHZZ	AN		C	Decoration panel [SE]
14	LANGA2828XHZZ	AL		C	Stopper bracket,left
15	LANGA2830XHZZ	AL		C	Stopper bracket,right
16	LANGH2829XHZZ	AS		C	Scanner strengthen plate
17	LANGR2833XHZZ	AG		C	Earth bracket
18	TLABZ0205GCZZ	AC		D	Laser label
19	LBNDJ2006XHZZ	AA		C	Band(100mm)
20	LPLTP3089XHYB	AR		C	Shading plate
22	MSPRC3154XHZZ	AF		C	Paper out pinch spring
23	MSPRC3161XHZZ	AG		C	Stopper spring
24	MSPRC3165XHZZ	AF		C	Clutch spring
25	MSPRC3166XHZZ	AF		C	Hopper spring
26	MSPRP3054XHFJ	AD		C	Panel lock lever spring
27	NGERH2363AXZZ	AC		C	Paper feed gear
28	NGERP2318XHZZ	AD		C	Pinion gear
29	NROLP2332XHZZ	AD		C	Pinch roller
30	NROLR2333XHZZ	AP		C	Feed roller
31	NSFTZ2321XHZZ	AN		C	Paper feed roller shaft
32	PCOVP2127XHZB	AR		D	ROM cover
33	TLABS0080AFZZ	AA		D	SEMKO label [SE]
34	PGIDM2584XHYB	AV		C	Feed guide
35	PGIDM2585XHZB	AK		C	Hopper guide,left
36	PGIDM2586XHZB	AK		C	Hopper guide,Right
37	PSHEP3795XHZZ	AF		C	Feed shield sheet
38	PSHEZ3410XHZZ	AB		C	Jack sheet
39	PSHEZ3529XHZZ	AK		C	SF insulation sheet L
40	PSHEZ3530XHZZ	AF		C	SF insulation sheet R
41	PSHEZ3531XHZZ	AK		C	Shading sheet
42	PSHEZ3534XHZZ	AF		C	SF insulation sheet M
43	PSHEZ3792XHZZ	AF		C	Hole shield sheet
44	PSHEZ3798XHZZ	AR		C	SF insulation sheet
45	PSLDM2063XHZZ	AN		C	Shield plate
46	QCNW-387ASCZZ	AD		C	Ground cable D2
47	TLABS296AXHZZ	AC		D	GS label [DE]
	TLABG2921XHZZ	AD		D	Class 1 label [SE]
⚠ 48	RCORF2125XHZZ	AE		B	Core(TRA31)
49	TLABH469GXHZZ	AG	N	D	Paper stack label [DE]
	TLABH470GXHZZ	AK	N	D	Paper stack label [IT]
	TLABH345GXHZZ	AF		D	Paper stack label [SE]
52	TLABZ488FXHZZ	AF		D	Cover label
53	TCAUS2034SCZZ	AD		D	Laser caution label
54	QCNWN430BXHZZ	AG		C	CIS earth cable
55	QCNWN429BXHZZ	AK		C	TX motor earth cable
56	QCNWN431BXHZZ	AK		C	Panel unit earth cable
57	PSHEZ3806XHZZ	AE		C	Absorb sheet
B1	XEBSD30P10000	AA		C	Screw(3x10)
B2	XEBSD30P30000	AA		C	Screw(3x30)
B3	XEBSE30P08000	AA		C	Screw(3x8)
B4	XEBSF30P12000	AA		C	Screw(3x12)
B5	XHBSE30P06000	AA		C	Screw(3x6)
B6	LX-BZ2138XHZZ	AB		C	Screw(2x6)
B7	LX-BZ2205SCZZ	AB		C	Screw(3x8)
B8	LX-BZ1006LC03	AA		C	Screw(3x10)

[2] Operation panel unit

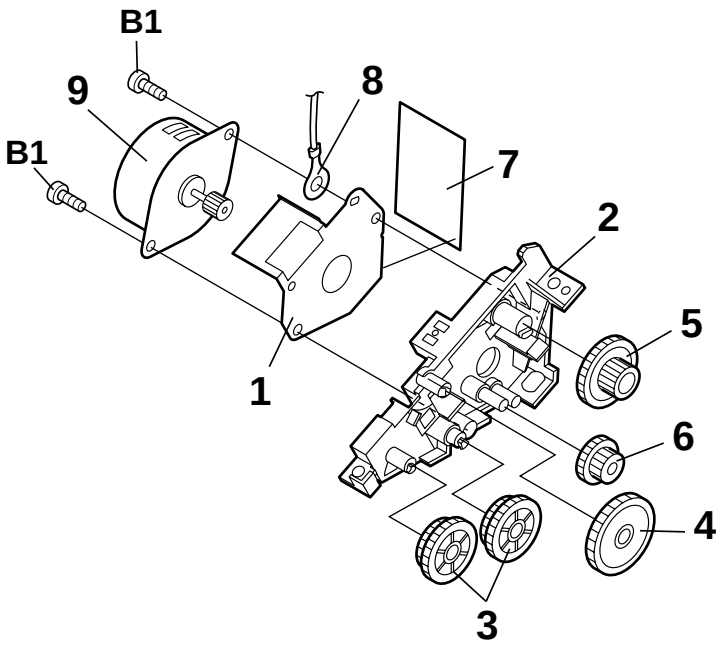


[3] Document guide upper unit

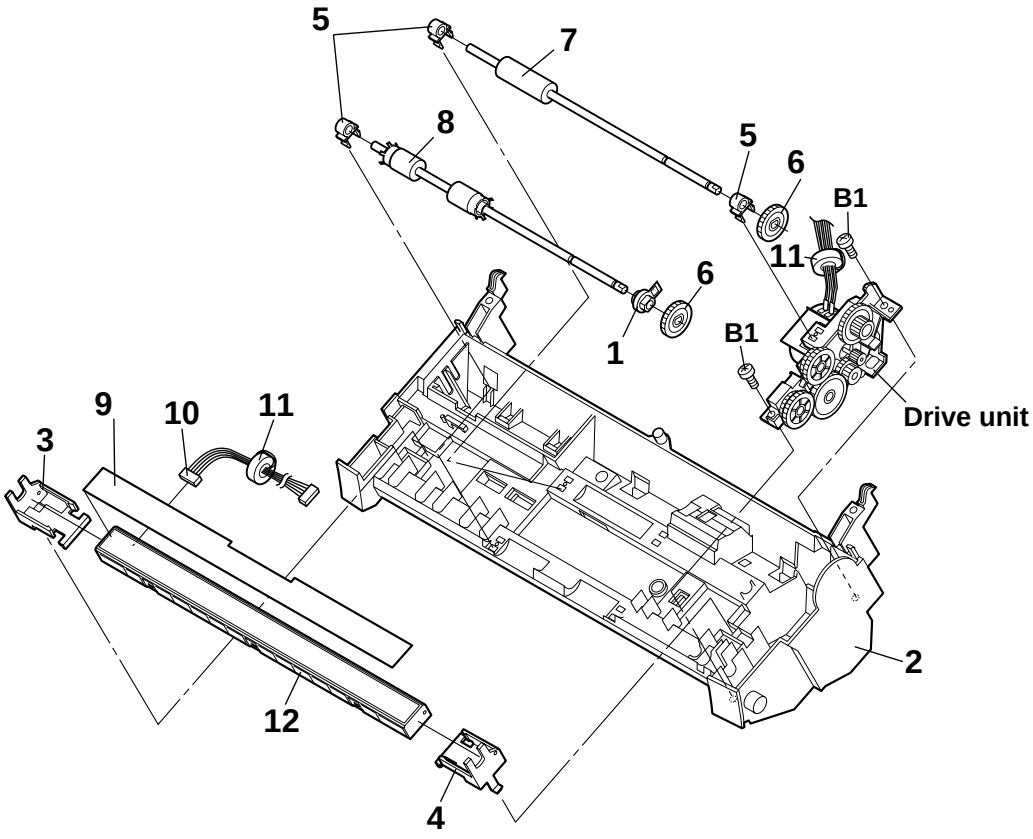


NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[2] Operation panel unit					
1	DCEKP211DXH01	BM		E	Operation panel PWB unit
2	GCASP2176XHSB	AU		D	Panel case [DE]
	GCASP2176XHSE	AU	N	C	Panel case [IT]
	GCASP2176XHSC	AU		C	Panel case [SE]
3	GCOVA2480XHSG	AM		C	Panel cover [DE]
	GCOVA2480XHSC	AP	N	C	Panel cover [IT]
	GCOVA2480XHSF	AP		C	Panel cover [SE]
4	JBTN-2412XHSA	AK		C	Cursor key
5	JBTN-2413XHSA	AG		C	Function key
6	JBTN-2414XHSA	AG		C	Start key
7	JBTN-2415XHSA	AF		C	Stop key
8	JBTN-2416XHSA	AF		C	Copy key
9	JBTN-2417XHSA	AK		C	10 key
10	JBTN-2418XHSA	AG		C	Direct key
11	QCNWN410BXHZZ	AV		C	Panel cable
12	QSW-M2294XHZA	AE		C	Front sensor
13	QSW-Z2262AXZZ	AE		C	Original sensor
14	RUNTZ2127XH01	BC		E	LCD unit
15	QSW-Q2331XHZZ	AE		C	Tact switch
16	HPNLH2435XHZA	AL		C	Decoration panel [DE]
	HPNLH2435XHZD	AL	N	C	Decoration panel [IT]
	HPNLH2435XHZZ	AN		C	Decoration panel [SE]
17	TLABZ488FXHZZ	AF		D	Cover label
B1	XEBSD20P06000	AA		C	Screw(2x6)
B2	XEBSD26P08000	AA		C	(2.6x8)
	(Unit)				
901	CCASP2176XH52	BK		E	Operation panel unit [DE]
	CCASP2176XH56	BK	N	E	Operation panel unit [IT]
	CCASP2176XH53	BK		E	Operation panel unit [SE]
[3] Document guide upper unit					
1	LANGF2827XHZZ	AL		C	Back bracket
2	LPLTG3307XHZZ	AF		C	Separation rubber
3	LPLTM3090XHZZ	AS		C	Document paper guide plate
4	LPLTP2790XHZZ	AD		C	Separate plate
5	MARMP2025XHZZ	AF		C	FD arm
6	MLEVP2331XHZB	AL		C	Release lever
7	MSPRC3153XHZZ	AF		C	Back spring 2
8	MSPRC3163XHZZ	AF		C	LC-RT spring
9	MSPRC3164XHZZ	AD		C	Pinch roller spring
10	MSPRP3152XHZZ	AG		C	Back spring 1
11	MSPRT3162XHZZ	AF		C	Separate spring
12	MSPRT3168XHZZ	AF		C	Feed spring
13	NROLP2334XHZA	AC		C	Pinch roller
14	NSFTZ2322XHZZ	AK		C	Pinch roller shaft 1
15	NSFTZ2323XHZZ	AL		C	Pinch roller shaft 2
16	PBRS-2050XHZZ	AK		C	Paper brush
17	PGIDM2583XHZA	AN		C	Back guide
18	PGIDP2582XHZA	AV		C	Document guide upper
19	PSHEZ3497XHZZ	AN		C	Back sheet
20	QCNWN430BXHZZ	AG		C	CIS earth cable
B1	XHBSE30P06000	AA		C	Screw(3x6)
B2	LX-BZ2205SCZZ	AB		C	Screw(3x8)

[4] Drive unit

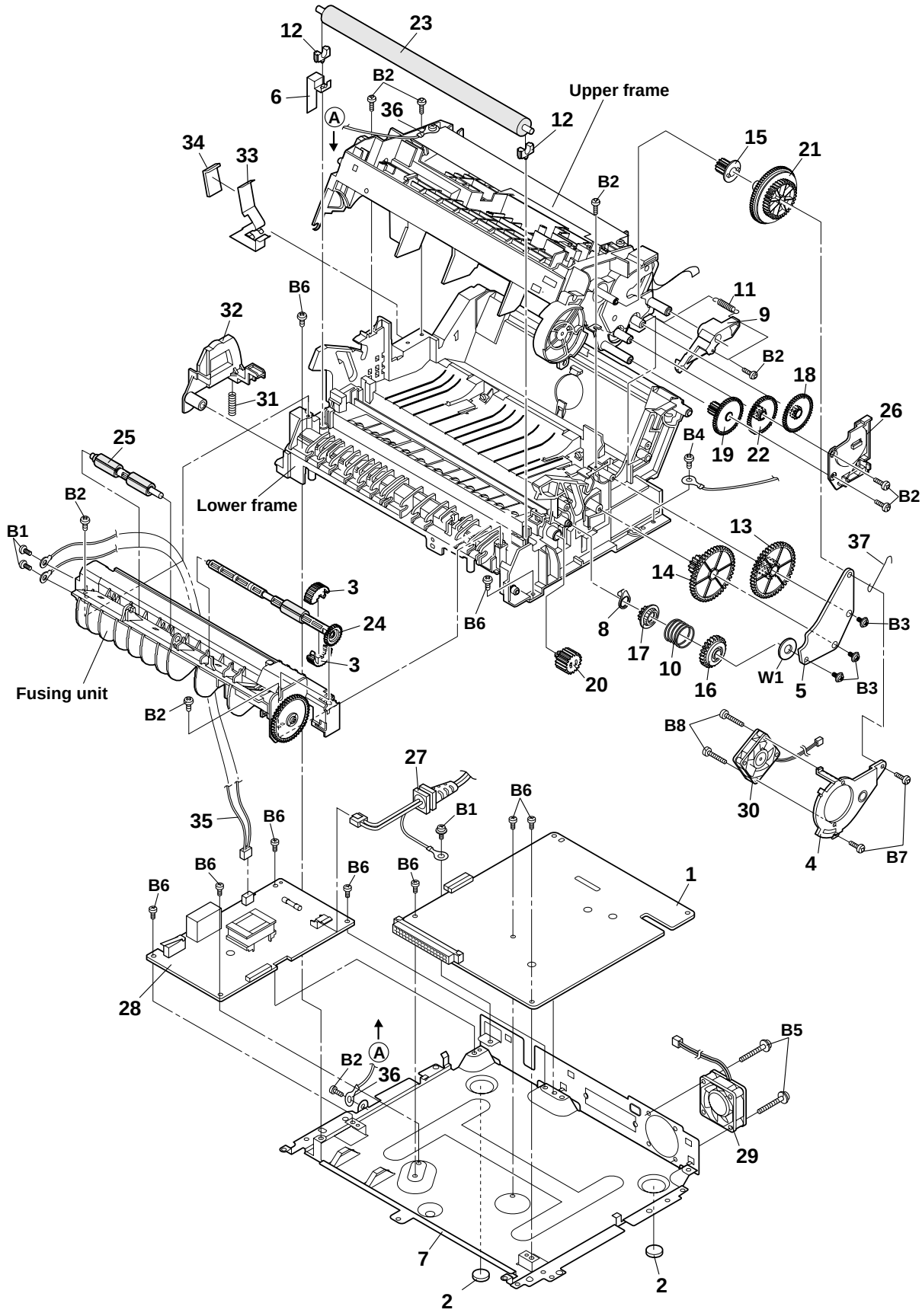


[5] Scanner frame unit



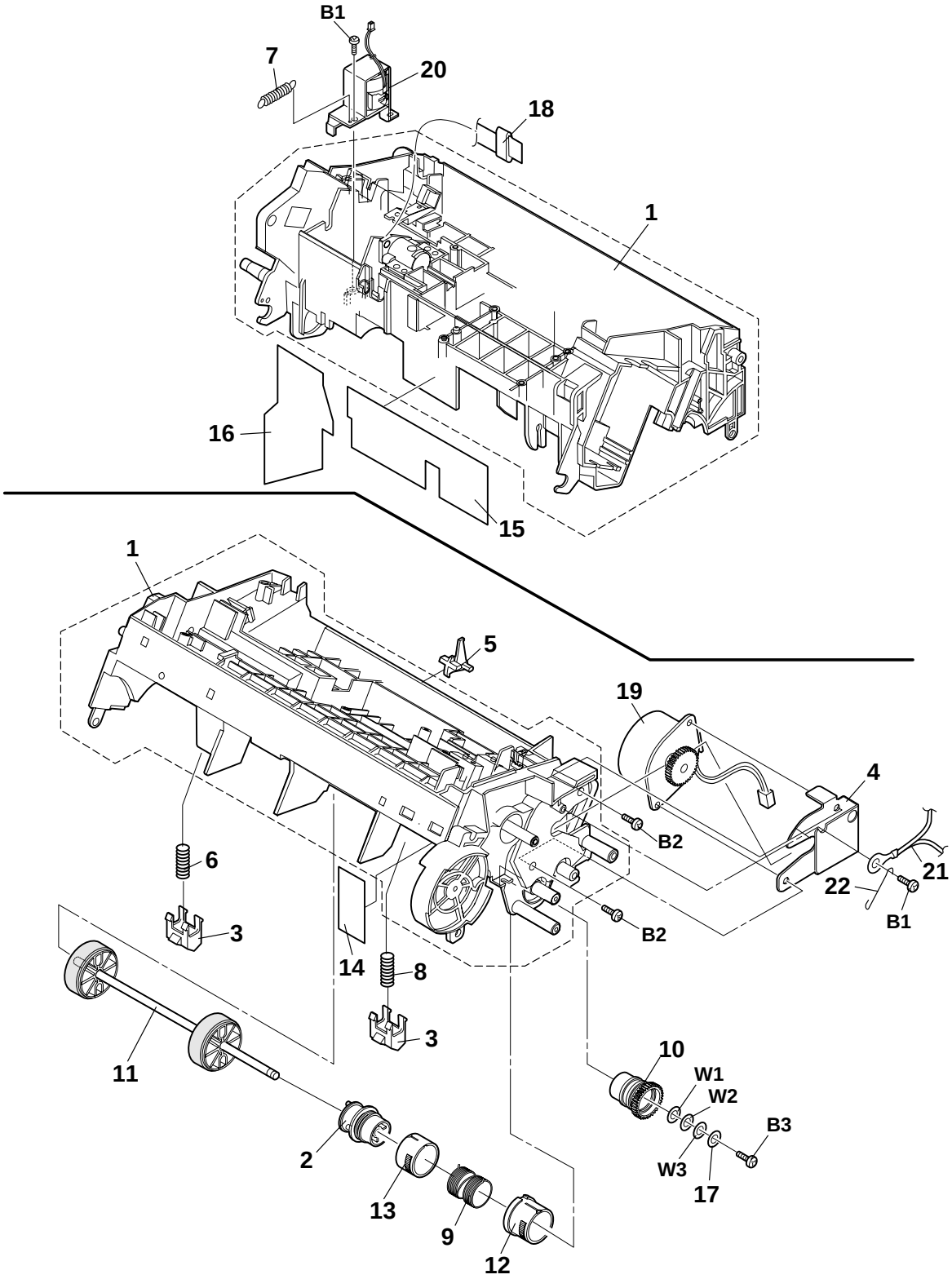
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[4] Drive unit					
1	LPLTM3091XHZZ	AK		C	Radiator plate
2	LPLTP3094XHZZ	AL		C	Drive frame
3	NGERH2277XHZZ	AC		C	Reduction gear B
4	NGERH2279XHZZ	AC		C	Idler gear A
5	NGERH2380XHZZ	AC		C	Reduction gear,17/36Z(17/36Z)
6	NGERH2395AXZZ	AD		C	Gear,White(15/23Z)
7	PSHEZ3528XHZZ	AF		C	Motor sheet
8	QCNWN429BXHZZ	AK		C	Ground cable C
9	RMOTZ2150XHZZ	BA		B	Transfer motor
B1	XEBSE30P08000	AA		C	Screw(3x8)
[5] Scanner frame unit					
1	LBSHP2121XHZZ	AF		C	Transfer roller bearing
2	LFRM-2213XHZD	AZ		C	Scanner frame
3	LHLDZ2180XHZZ	AC		C	CIS support,left
4	LHLDZ2181XHZA	AC		C	CIS support,right
5	NBRGP2141XHZZ	AH		C	Transfer bearing
6	NGERH2275XHZZ	AC		C	Transfer gear 2
7	NROLR2507XHZZ	AS		C	Transfer roller 1
8	NROLR2508XHZZ	AU		C	Transfer roller 2
9	PSHEP3796XHZZ	AK		C	CIS sheet
10	QCNWN412BXHZZ	AS		C	CIS cable
⚠ 11	RCORF2124XHZZ	AE		B	Core
12	RUNTZ2125XHZZ	BU		E	CIS(Contact image sensor)unit
B1	XEBSD30P10000	AA		C	Screw(3x10)

[6] Printer frame



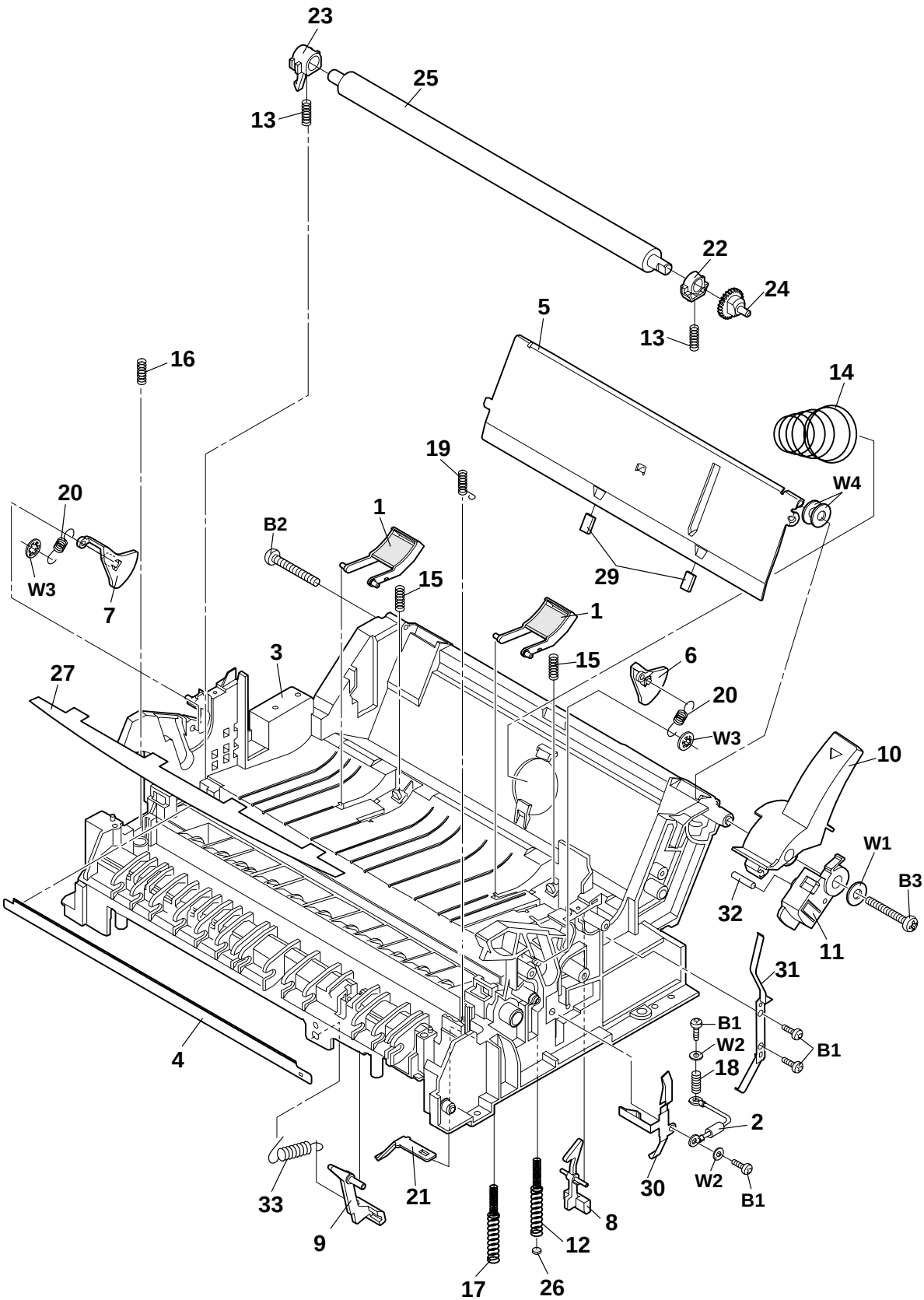
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[6] Printer frame					
1	DCEK-213DXH01	CA		E	Printer PWB unit
2	GLEGG2085XHZZ	AK		C	Gum leg
3	JKNBZ0004GCZZ	AC		C	Fusing knob
4	LANGT2863XHZZ	AN		C	Fan bracket
5	LPLTM0159GCZ1	AD		C	Gear plate
6	LPLTM0282GCZ2	AD		C	Heat sink plate
7	LPLTM3083XHZZ	BA		C	Bottom plate
8	MLEVP0037GCZZ	AB		C	Fusing clutch lever
9	MLEVP0093GCZZ	AD		C	Tray lock lever
10	MSPRC0135GCAZ	AB		C	Fusing clutch spring
11	MSPRT0307GCZZ	AA		C	Lock lever spring
12	NBRGP0106GCZZ	AF		C	Fusing bearing
13	NGERH0071GCZZ	AC		C	Motor idle gear
14	NGERH0072GCZ1	AD		C	Drum idle gear
15	NGERH0076GCZZ	AC		C	Developer drive gear B
16	NGERH0077GCZZ	AC		C	Fusing clutch gear A
17	NGERH0078GCZZ	AC		C	Fusing clutch gear B
18	NGERH0094GCZZ	AC		C	PU idle gear A
19	NGERH0096GCZZ	AC		C	PU idle gear C
20	NGERH0171GCZ3	AE		C	Fusing idle gear
21	NGERH0172GCZZ	AH		C	Developer drive gear A
22	NGERH0173GCZZ	AD		C	PU idle gear B2
23	NROLP0109GCZZ	AY		C	Fusing roller
24	NROLP2442SCZZ	AF		C	Paper exit roller upper A
25	NROLP2443SCZA		N	C	Paper exit roller upper B
26	PCOVP0086GCZ1	AD		C	Fusing gear cover
⚠ 27	QACCE2042XHZZ	AL		C	AC cord
⚠ 28	RDENT2204XHZZ	BR		E	Power supply PWB unit [DE]
29	NFANP2002XHZZ	BK		B	Rear fan
30	NFANP2003XHZZ	BK		B	Right fan
31	MSPRC3151XHZZ	AF		C	SW lever spring
32	MLEVP2330XHZZ	AK		C	Interlock SW lever
33	MSPRP3150XHZZ	AN		C	Speaker spring
34	PCUSG2136XHZZ	AF		C	Speaker cushion
35	DHAI-0142GCZZ	AH		C	Heater Harness
36	QCNW-387ASCZZ	AD		C	Ground cable D2
37	PWIR-2037XHZZ	AE		C	Earth spring
B1	LX-BZ2282XHZZ	AB		C	Screw(4x6)
B2	XEBSD30P08000	AA		C	Screw(3x8)
B3	XEPSD30P08X00	AA		C	Screw(3x8)
B4	XHBSD30P08000	AA		C	Screw(3x8)
B5	LX-BZ2252SCZZ	AB		C	Screw
B6	XHBSE30P06000	AA		C	Screw(3x6)
B7	XEBSF30P14000	AA		C	Screw(3x14)
B8	XHBSD30P16000	AA		C	Screw(3x16)
W1	LX-WZ2011SCZZ	AA		C	Washer

[7] Upper frame



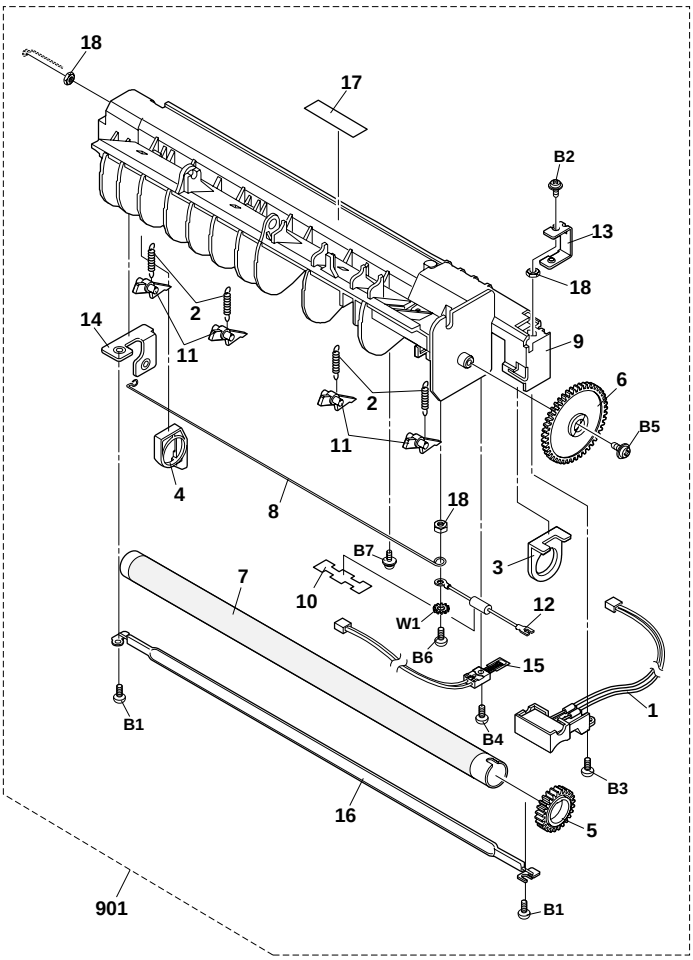
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[7] Upper frame					
1	CFRM-2248SC52	BT		C	Optical unit
2	LBOSZ0058GCZ1	AE		C	Paper feed roller boss
3	LFIX-0003GCZZ	AC		C	DV fixer
4	LPLTM0273GCZZ	AF		C	MM heat sink
5	MLEVP0046GCZZ	AE		C	Sleeve release lever
6	MSPRC0149GCAZ	AA		C	DV press spring
7	MSPRC0159GCAZ	AB		C	Lever release spring
8	MSPRC0319GCZZ	AB		C	DV spring
9	MSPRT0137GCAZ	AC		C	Clutch spring
10	NGERH0080GCZ1	AE		C	Paper feed clutch gear
11	NROLP0112GCZZ	AR		C	Paper feed roller
12	PPIPP0003GCZ1	AC		C	Clutch sleeve
13	PPIPP0006GCZ2	AC		C	Clutch R sleeve
14	PSHEP0166GCZZ	AC		C	Shading sheet C
15	PSHEP0320GCZ1	AF		C	Shading sheet 1
16	PSHEZ0335GCZZ	AD		C	Shading sheet 2
17	PSPAZ0049GCZZ	AC		C	Spacer
⚠ 18	RCORF7013XCZZ	AH		B	Core
19	RMOTS7028XCZZ	AY		B	Main motor
20	RPLU-0004GCZZ	AN		C	Paper feed solenoid
21	QCNWN448ASCZZ	AQ	N	C	Printer earth cable
22	PWIR-2037XHZZ	AE		C	Earth spring
B1	XEBSD30P08000	AA		C	Screw(3x8)
B2	XHBSD30P06000	AA		C	Screw(3x6)
B3	LX-BZ0187FCZ1	AA		C	Screw(3x8)(Red,Left type)
W1	LX-WZ0017GCZZ	AC		C	Washer
W2	LX-WZ0018GCZZ	AC		C	Washer
W3	LX-WZ0019GCZZ	AC		C	Washer

[8] Lower frame



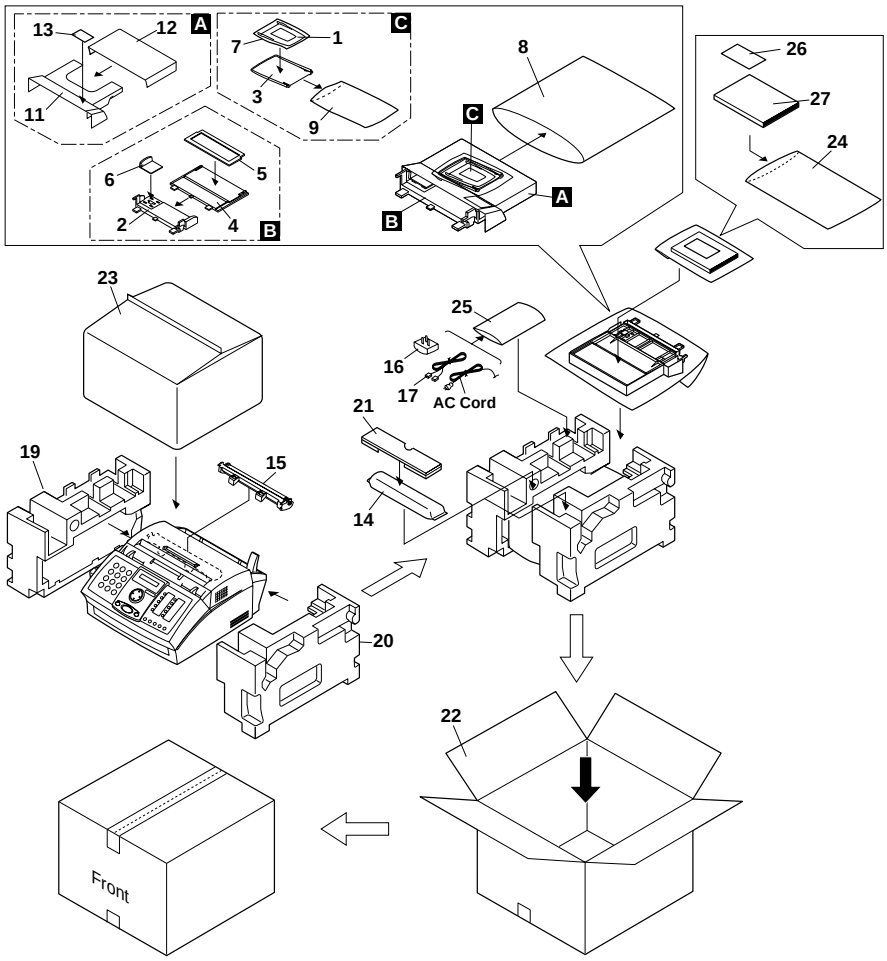
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[8] Lower frame					
1	CPLTP0274PS51	AL		C	Separate plate ass'y
2	DUNTK0152PSZZ	AE		C	DV bias
3	LFRM-0045GCZ1	AY		C	Lower frame
4	LPLTM0163GCZZ	AE		C	Separation electrode
5	LPLTM0275GCZ1	AK		C	Lift plate
6	MLEVP0038GCZZ	AC		C	DR lock lever R
7	MLEVP0039GCZZ	AC		C	DR lock lever L
8	MLEVP0040GCZZ	AC		C	PIN actuator
9	MLEVP0089GCZZ	AC		C	POUT actuator
10	MLEVP0090GCEZ	AM	N	C	Tray release lever
11	MLEVP0091GCZZ	AC		C	SB release lever
12	MSPRC0133GCA1	AB		C	High voltage terminal DR-MC spring
13	MSPRC0155GCA2	AB		C	Pressure spring
14	MSPRC0305GCZ2	AD		C	Tray spring
15	MSPRC0306GCZZ	AA		C	Separate spring
16	MSPRC0309GCZZ	AB		C	Fusing spring L
17	MSPRC0312GCZZ	AB		C	Fusing guide spring
18	MSPRC0313GCZZ	AB		C	DV bias spring
19	MSPRC0314GCZZ	AB		C	Fusing spring R
20	MSPRP0158GCAZ	AB		C	DR lock spring
21	MSPRP0304GCZZ	AC		C	High voltage terminal TC
22	NBRGP0104GCZZ	AC		C	Transfer bearing R
23	NBRGP0105GCZZ	AC		C	Transfer bearing L
24	NGERH0169GCZZ	AC		C	Transfer gear
25	NROLP7046XCZZ	AX		C	Transfer roller
26	PCOVP0038GCAZ	AA		C	Cover
27	PGIDM0078GCZZ	AM		C	Fusing guide
29	PSHEZ0190GCZZ	AC		C	TR sheet
30	QSLP-0028GCZZ	AE		C	Earth terminal
31	QSLP-0032GCZZ	AD		C	DV bias electrode
32	XPLUW20-14000	AC		C	Pin
33	MSPRT3454XHZZ	AG	N	C	Sensor return spring
B1	XEBSD30P08000	AA		C	Screw(3x8)
B2	XEBSD30P18000	AA		C	Screw(3x18)
B3	XEBSD30P30000	AA		C	Screw(3x30)
W1	XWHSD30-05080	AA		C	Washer
W2	XWSSD30-07000	AA		C	Washer
W3	LX-WZ0044FCZZ	AA		C	Washer(CS-3)
W4	XWHSD30-05060	AA		C	Washer

[9] Fusing unit



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[9] Fusing unit					
1	CHLDZ0040PS73	AR		E	Temperature fuse holder
2	MSPRT0308GCZZ	AA		C	Fusing separate spring
3	NBRGC0035GCZ1	AE		C	Fusing bearing R
4	NBRGP0082GCZZ	AB		C	Fusing bearing L
5	NGERH0083GCZ1	AE		C	Fusing gear
6	NGERH0174GCZZ	AD		C	Paper out idler gear
7	NROLM2501SCZ1	AY		C	Fusing roller
8	PBARM0001GCA1	AD		C	Fusing bar
9	PCOVP0091GCZ1		N	C	Fusing cover
10	PSHEP0161GCZ2	AC		C	Fuse sheet
11	PTME-0022GCZZ	AF		C	Separate nail
12	QFS-T0005GCZZ	AQ		A	Temperature fuse
13	QSLP-0029GCZZ	AD		C	Fusing terminal
14	QSLP-0030GCZZ	AD		C	Fusing AC terminal C
15	RDTCT0014GCZZ	AP		B	Thermistor
16	RLMPU0022GCZZ	AW		B	Lamp
17	TCAUH0017QSZZ	AC		D	Caution label
18	XNGSN30-18000	AC		C	Nut(M3)
B1	XBPSN30P05K00	AA		C	Screw(3x5)
B2	XBPSN30P06KS0	AA		C	Screw(3x6)
B3	XEBSD30P08000	AA		C	Screw(3x8)
B4	XEBSD30P10000	AA		C	Screw(3x10)
B5	XEPSD30P06X00	AA		C	Screw(3x6)
B6	LX-BZ0030GCZZ	AB		C	Screw
B7	LX-BZ3004SC0B	AA		C	Screw
W1	XWVUW30-04000	AA		C	Washer
	(Unit)				
901	DUNTW495CSC02	BN		E	Fusing unit

[10] Packing material & Accessories



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[10] Packing material & Accessories					
1	LPLTP3084XHZB	AP		C	Ext.hopper
2	LPLTP3085XHZB	AR		C	Paper tray base
3	LPLTP3088XHZB	AQ		C	Paper exit tray
4	LPLTP3283XHSA	AR		C	Paper tray
5	LPLTP3284XHSA	AP		C	Ext.paper tray
6	PGIDM2581XHZB	AL		C	Paper guide
7	SPAKP325DXHZZ	AD		D	Bag
8	SPAKP354FXHZZ	AM		D	Vinyl bag
9	SPAKP304FXHZZ	AE		D	Vinyl bag
11	GCOVA2481XHSA	AW		C	Paper cover
12	GCOVA2482XHSA	AW		C	Ext.paper cover
13	TLABH369GXHZZ	AG	N	D	Paper set label [DE]
	TLABH427GXHZZ	AQ	N	D	Paper set label [IT]
	TLABH468GXHZZ	AL	N	D	Paper set label [SE]
14	DUNT-205CSCZB	BW		S	Toner cartridge(Initial starter cartridge)
15	DUNT-206CSCZZ	BW		S	Drum cartridge(Initial starter cartridge)
16	QPLGJ2019XHZZ	AN		C	IT plug [IT]
⚠ 17	QCNW-4649XHZZ	AE		C	Telephone line cord [DE]
	QCNWG208BXHZZ	AF		C	Telephone line cord [IT]
19	SPAKA229FXHZZ	AP		D	Add.,left
20	SPAKA230FXHZZ	AP		D	Add.,Right
21	SPAKA231FXHZZ	AF		D	Pad,DV
22	SPAKC321FXHTZ	AY	N	D	Packing case
23	SPAKP355BXHZZ	AG		D	Body cover
24	SSAKA2340QCZZ	AA		D	Vinyl bag,operation manual(240x360mm)
25	SSAKA3001CCZZ	AA		D	Vinyl bag,handset cord(140x360mm)
26	TLABZ369GXHZZ	AE	N	D	Rapid key label [DE]
	TLABZ426GXHZZ	AG	N	D	Rapid key label [IT]
	TLABZ217GXHZZ	AG	N	D	Rapid key label [SE]
27	TINSG4386XHTZ	BC	N	D	Operation manual [DE]
	TINSI4398XHTZ	BB	N	D	Operation manual [IT]
	TINSE4407XHTZ	AY	N	D	Operation manual [SE]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[11] Control PWB unit						
1	UBATL2049SCZZ	AF		B	Battery(CR2032T23)	[BAT1]
2	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C1]
3	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C4]
4	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C6]
5	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C9]
6	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C10]
7	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C18]
8	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C19]
9	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C20]
10	VCEAEA1CW107M	AC		C	Capacitor(16WV 100μF)	[C21]
11	VCEAEA1HW226M	AB		C	Capacitor(50WV 22μF)	[C24]
12	VCEAEA1CW107M	AC		C	Capacitor(16WV 100μF)	[C25]
13	VCEAEA1EW476M	AB		C	Capacitor(25WV 47μF)	[C26]
14	VCEAEA1EW476M	AB		C	Capacitor(25WV 47μF)	[C27]
15	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C30]
16	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C31]
17	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C100]
18	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C101]
19	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C102]
20	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C103]
21	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C108]
22	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C109]
23	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C110]
24	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C111]
25	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C112]
26	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C113]
27	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C114]
28	VCKYCY1HB222K	AA		C	Capacitor(50WV 2200PF)	[C117]
29	VCKYCY1HB222K	AA		C	Capacitor(50WV 2200PF)	[C118]
30	VCKYCY1HB222K	AA		C	Capacitor(50WV 2200PF)	[C119]
31	VCKYCY1HB222K	AA		C	Capacitor(50WV 2200PF)	[C120]
32	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C121]
33	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C122]
34	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C123]
35	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C124]
36	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C125]
37	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C126]
38	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C127]
39	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C128]
40	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C129]
41	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C130]
42	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C136]
43	VCKYCY1HB473K	AA		C	Capacitor(50WV 0.047μF)	[C144]
44	VCKYCY1HB473K	AA		C	Capacitor(50WV 0.047μF)	[C145]
45	VCKYCY1HB473K	AA		C	Capacitor(50WV 0.047μF)	[C146]
46	VCKYCY1HB473K	AA		C	Capacitor(50WV 0.047μF)	[C147]
47	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C148]
48	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C149]
49	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C150]
50	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF)	[C151]
51	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF)	[C152]
52	VRS-CY1JB202J	AA		C	Resistor(1/16W 2KΩ ±5%)	[C157]
53	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C160]
54	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C164]
55	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C165]
56	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C166]
57	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C167]
58	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C168]
59	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C169]
60	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C171]
61	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C172]
62	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C173]
63	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C174]
64	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C175]
65	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C176]
66	VCCCCY1HH270J	AA		C	Capacitor(50WV 27PF)	[C177]
67	VCCCCY1HH271J	AA		C	Capacitor(50WV 270PF)	[C183]
68	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[C184]
69	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C185]
70	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C191]
71	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C192]
72	VCCCCY1HH100D	AA		C	Capacitor(50WV 10PF)	[C193]
73	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C194]
74	VCCCCY1HH100D	AA		C	Capacitor(50WV 10PF)	[C195]
75	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C196]
76	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C197]
77	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C198]
78	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C199]
79	VCCCCY1HH270J	AA		C	Capacitor(50WV 27PF)	[C201]
80	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C212]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[11] Control PWB unit						
81	VCKYCY1HB471K	AB		C	Capacitor(50WV 470PF)	[C213]
82	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01µF)	[C214]
83	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C215]
84	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01µF)	[C216]
85	VCKYCY1HB472K	AA		C	Capacitor(50WV 4700PF)	[C217]
86	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C218]
87	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C219]
88	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C220]
89	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C221]
90	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1µF)	[C222]
91	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C223]
92	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C224]
93	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C225]
94	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C226]
95	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C227]
96	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C228]
97	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C229]
98	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C230]
99	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C231]
100	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C232]
101	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF)	[C233]
102	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF)	[C234]
103	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C235]
104	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C237]
105	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C238]
106	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1µF)	[C243]
107	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C249]
108	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C253]
109	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C254]
110	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C255]
111	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C256]
112	VCKYCY1HB472K	AA		C	Capacitor(50WV 4700PF)	[C257]
113	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C258]
114	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C259]
115	VCCCCY1HH470J	AA		C	Capacitor(50WV 47PF)	[C260]
116	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C262]
117	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C264]
118	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C266]
119	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C267]
120	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C273]
121	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C275]
122	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C279]
123	QCNCM7014SC0G	AB		C	Connector(7pin)	[CNCIS]
124	QCNCM2498SC0B	AB		C	Connector(2pin)	[CNFAN]
125	QCNCM7014SC0C	AA		C	Connector(3pin)	[CNFUSE]
126	QCNCW2500SC1D	AG		C	Connector(14pin)	[CNLIUA]
127	QCNCM7014SC0F	AB		C	Connector(6pin)	[CNMT]
128	QCNCM7014SC1D	AC		C	Connector(14pin)	[CNPN]
129	QCNCM2401SC0C	AB		C	Connector(3pin)	[CNPRG]
130	QCNCM2436SC4J	AH		C	Connector(40pin)	[CNPRT]
131	QCNCM7014SC0B	AD		C	Connector(2pin)	[CNRTH]
132	QCNCM2401SC0B	AA		C	Connector(2pin)	[CNSP]
133	VHD1SS355//-1	AB		B	Diode(1SS355)	[D100]
134	VHDDA204K//-1	AC		B	Diode(DA204K)	[D101]
135	VHD1SS355//-1	AB		B	Diode(1SS355)	[D102]
136	VHD1SS355//-1	AB		B	Diode(1SS355)	[D104]
137	VHDHRW0202B-1	AD		B	Diode(HRW0202)	[D105]
138	VHDDA204K//-1	AC		B	Diode(DA204K)	[D106]
139	VHDDA204K//-1	AC		B	Diode(DA204K)	[D107]
140	QFS-L1037YCZZ	AD		A	Fuse(KAB3202 801)	[FU100]
141	RH-IX2356XHZZ	AL		B	IC,Driver IC(ULN2001)	[IC1]
142	VHIF004/TB80B		N	B	IC,ROM(SST39LF040-45)Ver.TB80B(DROM-688SXH01)	[IC3][DE]
143	VHIF004/TB84A		N	B	IC,ROM(SST39LF040-45)Ver.TB84A(DROM-880SXH01)	[IC3][IT]
144	VHIF004/TB85B		N	B	IC,ROM(SST39LF040-45)Ver.TB85B(DROM-787SXH01)	[IC3][SE]
145	VHI28F4BVET85	AX		B	IC,4Mbit Flash ROM(LH28F400BVE-TL85)	[IC5]
146	RH-IX2288SCZZ	BE		B	IC,16Mbit DRAM(IS41LV8205)	[IC6]
147	RH-IX2358XHZZ	BF		B	IC,64Mbit SDRAM(M12L64164A-7T)	[IC7]
148	RH-IX2352XHZZ	BH		B	IC,Original ASIC(µPD65944)	[IC8]
149	RH-IX2359XHZZ	BD		B	IC,CPU(µPD780032A)	[IC9]
150	VHISCE214//-1	BN		B	IC,FAX Engine(SCE214)	[IC11]
151	VHINJM2113M-1	AG		B	IC,Speaker Amp.(NJM2113M)	[IC12]
152	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L106]
153	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L107]
154	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[L108]
155	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L109]
156	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L110]
157	VS2SA1530AS-1	AC		B	Transistor(2SA1530AS)	[Q100]
158	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q105]
159	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q107]
160	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q108]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[11] Control PWB unit						
161	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q109]
162	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q110]
163	VS2SA1036KR-1	AC		B	Transistor(2SA1036KR)	[Q111]
164	VRS-HT3DA301J	AA		C	Resistor(2W 300Ω ±5%)	[R1]
165	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R2]
166	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R4]
167	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R5]
168	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R6]
169	VRS-CY1JB201J	AA		C	Resistor(1/16W 200Ω ±5%)	[R7]
170	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R8]
171	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R9]
172	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R10]
173	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R11]
174	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R12]
175	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R13]
176	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R14]
177	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R15]
178	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R16]
179	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R17]
180	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R18]
181	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R19]
182	VRS-CY1JB333J	AA		C	Resistor(1/16W 33KΩ ±5%)	[R20]
183	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R21]
184	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R22]
185	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R26]
186	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R28]
187	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R29]
188	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R30]
189	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R31]
190	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R32]
191	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R33]
192	VRS-CY1JB201J	AA		C	Resistor(1/16W 200Ω ±5%)	[R34]
193	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R35]
194	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R36]
195	VRS-CY1JB333J	AA		C	Resistor(1/16W 33KΩ ±5%)	[R37]
196	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R100]
197	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R101]
198	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R102]
199	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R103]
200	VRS-CY1JB512J	AA		C	Resistor(1/16W 5.1KΩ ±5%)	[R104]
201	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R105]
202	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R106]
203	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R109]
204	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R110]
205	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R111]
206	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R112]
207	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R116]
208	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R129]
209	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R130]
210	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R131]
211	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R132]
212	VRS-CY1JB105J	AA		C	Resistor(1/16W 1MΩ ±5%)	[R135]
213	VRS-CY1JB561J	AA		C	Resistor(1/16W 560Ω ±5%)	[R136]
214	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R137]
215	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R138]
216	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R139]
217	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R140]
218	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R141]
219	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R142]
220	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R143]
221	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R144]
222	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R145]
223	VRS-CY1JB202J	AA		C	Resistor(1/16W 2KΩ ±5%)	[R152]
224	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R153]
225	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R154]
226	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R155]
227	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R156]
228	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R157]
229	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R158]
230	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R159]
231	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R160]
232	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R161]
233	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R162]
234	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R164]
235	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R165]
236	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R166]
237	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R167]
238	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R168]
239	VRS-CY1JB105J	AA		C	Resistor(1/16W 1MΩ ±5%)	[R169]
240	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R170]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[11] Control PWB unit						
241	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ±5%)	[R176]
242	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ±5%)	[R177]
243	VRS-CY1JB680J	AA		C	Resistor(1/16W 68Ω ±5%)	[R178]
244	VRS-CY1JB680J	AA		C	Resistor(1/16W 68Ω ±5%)	[R179]
245	VRS-CY1JB680J	AA		C	Resistor(1/16W 68Ω ±5%)	[R180]
246	VRS-CY1JB106J	AA		C	Resistor(1/16W 10MΩ ±5%)	[R181]
247	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R182]
248	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R183]
249	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ±5%)	[R184]
250	VRS-CY1JB681J	AA		C	Resistor(1/10W 680Ω ±5%)	[R185]
251	VRS-CY1JB105J	AA		C	Resistor(1/16W 1MΩ ±5%)	[R186]
252	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R187]
253	VRS-CY1JB330J	AA		C	Resistor(1/16W 33Ω ±5%)	[R191]
254	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ±5%)	[R196]
255	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R197]
256	VRS-CY1JB183J	AA		C	Resistor(1/16W 18KΩ ±5%)	[R198]
257	VRS-CY1JB823J	AD		C	Resistor(1/16W 82KΩ ±5%)	[R199]
258	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R200]
259	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R201]
260	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R202]
261	VRS-CY1JB222J	AA		C	Resistor(1/16W 2.2KΩ ±5%)	[R203]
262	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R204]
263	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ±5%)	[R205]
264	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R206]
265	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R207]
266	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R208]
267	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R209]
268	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R210]
269	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R211]
270	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R212]
271	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R213]
272	VRS-CY1JB201J	AA		C	Resistor(1/16W 200Ω ±5%)	[R214]
273	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R216]
274	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R217]
275	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R218]
276	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R219]
277	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R220]
278	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R221]
279	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R222]
280	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R223]
281	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R224]
282	VRSCY1JB2002F		N	C	Resistor(1/16W 20KΩ ±1%)	[R226]
283	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R227]
284	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R228]
285	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R229]
286	VRS-CY1JB562J	AA		C	Resistor(1/16W 5.6KΩ ±5%)	[R231]
287	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R235]
288	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R236]
289	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R237]
290	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R238]
291	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R239]
292	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R240]
293	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R241]
294	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R242]
295	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R243]
296	VRS-CY1JB202J	AA		C	Resistor(1/16W 2KΩ ±5%)	[R244]
297	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R245]
298	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R246]
299	VRS-CY1JB681J	AA		C	Resistor(1/10W 680Ω ±5%)	[R247]
300	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA1]
301	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA2]
302	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA5]
303	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA6]
304	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA7]
305	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA8]
306	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA9]
307	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA10]
308	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA18]
309	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA19]
310	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA20]
311	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA23]
312	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA24]
313	RR-TZ3018SCZZ	AC		B	Block resistor(470Ωx4)	[RA25]
314	RR-TZ3016SCZZ	AA		C	Block resistor(33Ωx4)	[RA27]
315	RR-TZ3018SCZZ	AC		B	Block resistor(470Ωx4)	[RA28]
316	RH-IX2360XHZZ	AL		B	IC,3.3V REG(S-815A33AMC)	[REG1]
317	RH-IX2360XHZZ	AL		B	IC,3.3V REG(S-815A33AMC)	[REG3]
318	RCRSP2203XHZZ	AN		B	Crystal(20.95261MHz)	[X2]
319	RCRSP2204XHZZ	AN		B	Crystal(8MHz)	[X3]
320	RCRSB2185XHZZ	AD		B	Crystal(32.768kHz)	[X5]

	NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
	[11] Control PWB unit						
	321	RCRSP2207XHZZ	AS		B	Crystal(32.256MHz)	[X6]
	322	VHE1N4748A/-1	AC		B	Diode(1N4748A)	[ZD1]
	323	TLABN1235CCZZ	AA		D	EPROM label	
		(Unit)					
	901	DCEKC688SXHZZ	CA		E	Control PWB unit(Within ROM)	[DE]
		DCEKC880SXHZZ	CA	N	E	Control PWB unit(Within ROM)	[IT]
		DCEKC787SXHZZ	CA		E	Control PWB unit(Within ROM)	[SE]
	[12] LIU PWB unit						
⚠	1	VHVRA501PC6-1	AG		B	Varistor(RA501P-C6)	[AR1]
⚠	2	VHVRA501PC6-1	AG		B	Varistor(RA501P-C6)	[AR2]
	3	VCEAEA1CW476M	AA		C	Capacitor(16WV 47µF)	[C1]
	4	VCE9GA475V1HM	AC		C	Capacitor(50WV 4.7µF)	[C2]
	5	VCEAEA1CW476M	AA		C	Capacitor(16WV 47µF)	[C4]
	6	VCEAEA1HW106M	AA		C	Capacitor(50WV 10µF)	[C5]
	7	VCFYDA1HA474J	AD		C	Capacitor(50WV 0.47µF)	[C6]
	8	RC-FZ3079SCZZ	AG		C	Capacitor(250WV 1µF)	[C7]
	9	RC-FZ3077SCZZ	AG		C	Capacitor(250WV 0.47µF)	[C8]
	10	VCEAEA1HW225M	AA		C	Capacitor(50WV 2.2µF)	[C9]
	11	VCEAEA1HW226M	AB		C	Capacitor(50WV 22µF)	[C10]
	12	VCEAGA1HW107M	AA		C	Capacitor(50WV 100µF)	[C11]
	13	VCEAEA1HW226M	AB		C	Capacitor(50WV 22µF)	[C12]
	14	VCEAEA1CW107M	AC		C	Capacitor(16WV 100µF)	[C13]
	15	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C100]
	16	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C101]
	17	VCKYTV1HB563K	AA		C	Capacitor(50WV 0.056µF)	[C102]
	18	VCKYTV1HB223K	AA		C	Capacitor(50WV 0.022µF)	[C103]
	19	VCKYTV1HB563K	AA		C	Capacitor(50WV 0.056µF)	[C105]
	20	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C106]
	21	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C107]
	22	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C108]
	23	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01µF)	[C109]
	24	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C110]
	25	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C111]
	26	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C112]
	27	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C114]
	28	VCCCCY1HH151J	AA		C	Capacitor(50WV 150PF)	[C115]
	29	VCCCCY1HH331J	AB		C	Capacitor(50WV 330PF)	[C116]
	30	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C117]
	31	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C118]
	32	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1µF)	[C119]
	33	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01µF)	[C120]
	34	VCKYCY1AB105K	AB		C	Capacitor(16WV 1µF)	[C121]
	35	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C122]
	36	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C123]
	37	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C124]
	38	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C125]
⚠	39	RRLYZ3427SCZZ	AN		B	Relay(TXD2-2M-24V)	[CML1][SE]
⚠	40	RRLYD3436XHZZ	AP		B	Relay(A5X-24E-908)	[CML2][DE/IT]
	41	QCNCM2548SC1D	AP		C	Connector(14pin)	[CNLIUA]
	42	QJAKZ2060SC0F	AE		C	Jack(36pin)	[CNLNJ]
	43	QJAKZ2060SC0D	AE		C	Jack(36pin)	[CNTLJ]
	44	VHDDSS133//-1	AA		B	Diode(1SS133)	[D1]
	45	VHDDSS133//-1	AA		B	Diode(1SS133)	[D2]
	46	VHD1SS355//-1	AB		B	Diode(1SS355)	[D101]
	47	VHITHS65//-1A	AF		B	IC,Current sensor(THS-65)	[IC1]
	48	VHINJM2904M-2	AG		B	IC,Ope Amp.(NJM2904M)	[IC101]
⚠	49	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L1]
⚠	50	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L2]
	51	RCILF2125SCZZ	AF		C	Coil(4.7mH)	[L3]
⚠	52	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L4]
⚠	53	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L6]
⚠	54	VHPTLP621-1BL	AD		B	Photo coupler(TLP621)	[PC1]
⚠	55	VHPTLP621-1BL	AD		B	Photo coupler(TLP621)	[PC2]
	56	VSKTD2092//-1	AL		B	Transistor(KTD2092)	[Q1]
	57	VSKTC3198GR-1	AD		B	Transistor(KTC3198GR)	[Q2]
	58	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q100]
	59	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q101]
	60	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q102]
	61	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q103]
	62	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q104]
	63	VRS-HT3AA473J	AA		C	Resistor(1W 47KΩ ±5%)	[R1]
	64	VRD-HT2EY433J	AA		C	Resistor(1/4W 43KΩ ±5%)	[R2]
	65	VRD-HT2EY101J	AA		C	Resistor(1/4W 100Ω ±5%)	[R3]
	66	VRS-HT3AA121J	AA		C	Resistor(1W 120Ω ±5%)	[R4]
	67	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R5]
	68	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R6]
	69	VRD-HT2EY101J	AA		C	Resistor(1/4W 100Ω ±5%)	[R7]
	70	VRD-HT2EY300J	AA		C	Resistor(1/4W 30Ω ±5%)	[R8]
	71	VRD-HT2EY240J	AA		C	Resistor(1/4W 24Ω ±5%)	[R9]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[12] LIU PWB unit						
72	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R100]
73	VRS-TP2BD100J	AA		C	Resistor(1/8W 10Ω ±5%)	[R101]
74	VRS-CY1JB392J	AA		C	Resistor(1/16W 3.9KΩ ±5%)	[R102]
75	VRS-CY1JB391J	AA		C	Resistor(1/16W 390Ω ±5%)	[R103]
76	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R104]
77	VRS-TS2AD301J	AA		C	Resistor(1/10W 300Ω ±5%)	[R106]
78	VRS-CY1JB273J	AA		C	Resistor(1/16W 27KΩ ±5%)	[R107]
79	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R108]
80	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R109]
81	VRS-CY1JB222J	AA		C	Resistor(1/16W 2.2KΩ ±5%)	[R110]
82	VRS-CY1JB751J	AA		C	Resistor(1/16W 750Ω ±5%)	[R111]
83	VRS-CY1JB273J	AA		C	Resistor(1/16W 27KΩ ±5%)	[R112]
84	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R113]
85	VRS-CY1JB364J	AA		C	Resistor(1/16W 360KΩ ±5%)	[R114]
86	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R115]
87	VRS-TS2AD391J	AA		C	Resistor(1/10W 390Ω ±5%)	[R116]
88	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R117]
89	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R118]
90	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R119]
91	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R120]
92	RH-DX2007SCZZ	AC		B	Diode bridge(S1ZB60)	[REC1]
93	VHINJM78L05A1	AD		B	Regulator(NJM78L05A)	[REG1]
⚠ 94	RTRNI2165XHZZ	AG		B	Transformer(I2165)	[T1]
⚠ 95	VHVDSS301L/-U	AF		B	Varistor(DSS-301L)	[VA1]
96	VHEMTZJ4R7B-1	AC		B	Zener diode(MTZJ4R7B)	[ZD1]
97	VHEMTZJ4R7B-1	AC		B	Zener diode(MTZJ4R7B)	[ZD2]
98	VHEMTZJ200B-1	AC		B	Zener diode(MTZJ20B)	[ZD3]
99	VHEHZ11C3//-1	AB		B	Zener diode(HZ11C3)	[ZD4]
100	VHEMTZJ100B-1	AC		B	Zener diode(MTZJ10B)	[ZD5]
101	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[ZD6]
102	VHEBZX79B47/A	AH		B	Zener diode(BZX79B47)	[ZD7]
	(Unit)					
901	DCEKL221DXH01	BN		E	LIU PWB unit	[DE/IT]
	DCEKL221DXH02	BP		E	LIU PWB unit	[SE]
[13] Printer PWB unit						
1	VCEAGA1VW476M	AB		C	Capacitor(35WV 47μF)	[C1]
2	VCEAGA1VW476M	AB		C	Capacitor(35WV 47μF)	[C2]
3	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C4]
4	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C5]
5	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C6]
6	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C7]
7	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C8]
8	VCKYPA1HB331K	AA		C	Capacitor(50WV 330PF)	[C9]
9	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C10]
10	VCKYPA1HB331K	AA		C	Capacitor(50WV 330PF)	[C11]
11	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C12]
12	VCQYNA1HM472K	AA		C	Capacitor(50WV 4700PF)	[C14]
13	VCQYNA1HM472K	AA		C	Capacitor(50WV 4700PF)	[C19]
14	VCQYNA1HM153K	AB		C	Capacitor(50WV 0.015μF)	[C20]
15	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C21]
16	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C22]
17	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C23]
18	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C24]
19	VCEAGA1VW476M	AB		C	Capacitor(35WV 47μF)	[C25]
20	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C31]
21	VCQYNA1HM222K	AA		C	Capacitor(50WV 2200PF)	[C32]
22	VCKYQY3FB102K	AD		C	Capacitor(3KWV 1000PF)	[C33]
23	VCKYQY3JB102K	AD		C	Capacitor(6KWV 1000PF)	[C34]
24	VCKYQY3JB102K	AD		C	Capacitor(6KWV 1000PF)	[C35]
25	VCKYQY3JB102K	AD		C	Capacitor(6KWV 1000PF)	[C36]
26	VCKYQY3AB102K	AC		C	Capacitor(1KWV 1000PF)	[C37]
27	VCKYPA1HB391K	AA		C	Capacitor(50WV 390PF)	[C38]
28	VCKYQY3AB102K	AC		C	Capacitor(1KWV 1000PF)	[C39]
29	VCKYQY3DB151K	AC		C	Capacitor(2KWV 150PF)	[C40]
30	VCKYQY3AB102K	AC		C	Capacitor(1KWV 1000PF)	[C41]
31	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C42]
32	VCKYPA1HB101K	AA		C	Capacitor(50WV 100PF)	[C43]
33	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C44]
34	VCKYPA1HB102K	AA		C	Capacitor(50WV 1000PF)	[C45]
35	VCEAGA1VW476M	AB		C	Capacitor(35WV 47μF)	[C46]
36	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C47]
37	VCEAGA1VW476M	AB		C	Capacitor(35WV 47μF)	[C50]
38	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C51]
39	VCEAGA1VW476M	AB		C	Capacitor(35WV 47μF)	[C52]
40	VCTYPA1HF104Z	AC		C	Capacitor(50WV 0.1μF)	[C53]
41	QCNCM2401SC0C	AB		C	Connector(3pin)	[CNFM]
42	QCNCWZK11AWZZ	AG		C	Connector(11pin)	[CNLSU]
43	QCNCM7022SC0D	AC		C	Connector(4pin)	[CNMMT]
44	QCNCM704BAF06	AC		C	Connector(2pin)	[CNPL]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[13] Printer PWB unit						
45	QCNCW2436SC4J	AH		C	Connector(40pin)	[CNPRT]
46	QCNCM2575SC1B	AF		C	Connector(12pin)	[CNPW]
47	QCNCM7022SC0E	AB		C	Connector(5pin)	[CNTNR]
48	VHDDSM1D1//-1	AB		B	Diode(DSM1D)	[D1]
49	VHDSHV06EN/-1	AL		B	Diode(SHV-06EN)	[D2]
50	VHDSHV06EN/-1	AL		B	Diode(SHV-06EN)	[D3]
51	VHDDSM1D1//-1	AB		B	Diode(DSM1D)	[D4]
52	VHDSHV03///-1	AE		B	Diode(SHV-03)	[D5]
53	VHDSHV03///-1	AE		B	Diode(SHV-03)	[D6]
54	VHDSHV06EN/-1	AL		B	Diode(SHV-06EN)	[D7]
55	VHDSHV06EN/-1	AL		B	Diode(SHV-06EN)	[D8]
56	VHDSHV02///-1	AD		B	Diode(SHV-02)	[D9]
57	VHDDSS133//-1	AA		B	Diode(1SS133)	[D10]
58	VHDDSS133//-1	AA		B	Diode(1SS133)	[D11]
59	QTANN2046SCZZ	AC		C	Terminal(N2046)	[DC-BIAS]
60	QTANN2046SCZZ	AC		C	Terminal(N2046)	[DRUM]
61	VHVICPN10//-1	AD		C	IC protector(ICP-N10)	[F1]
62	VHVICPN25//-1	AD		C	IC protector(ICP-N25)	[F2]
63	VHVICPN10//-1	AD		C	IC protector(ICP-N10)	[F3]
64	QTANN2046SCZZ	AC		C	Terminal(N2046)	[FU-G]
65	VHIULN2003AN/	AE		B	IC,Transistor array(ULN2003AN)	[IC1]
66	VHIA2918SWH//	AR		B	IC,Motor driver(A2918SWH)	[IC2]
67	QTANN2046SCZZ	AC		C	Terminal(N2046)	[MC]
68	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PI1(POUT)]
69	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PI2(PIN)]
70	VSDTC114ES/-1	AB		B	Transistor(DTC114)	[Q1]
71	VS2SA854SR/-1	AC		B	Transistor(2SA854SR)	[Q2]
72	VS2SC1815GR-1	AB		B	Transistor(2SC1815GR)	[Q3]
73	VS2SA933SS/-1	AB		B	Transistor(2SA933AS)	[Q4]
74	VS2SD1264-/-1	AF		B	Transistor(2SD1264)	[Q5]
75	VS2SA933SS/-1	AB		B	Transistor(2SA933AS)	[Q6]
76	VS2SC1815GR-1	AB		B	Transistor(2SC1815GR)	[Q7]
77	VS2SA933SS/-1	AB		B	Transistor(2SA933AS)	[Q8]
78	VS2SD1264-/-1	AF		B	Transistor(2SD1264)	[Q9]
79	VRD-HT2EY472J	AA		C	Resistor(1/4W 4.7KΩ ±5%)	[R2]
80	VRD-HT2EY473J	AA		C	Resistor(1/4W 47KΩ ±5%)	[R3]
81	VRD-HT2EY392J	AA		C	Resistor(1/4W 3.9KΩ ±5%)	[R12]
82	VRNHT2EK4701F	AA		C	Resistor(1/4W 4.7KΩ ±1%)	[R13]
83	VRNHT2EK2002F	AA		C	Resistor(1/4W 20KΩ ±1%)	[R14]
84	VRD-HT2EY472J	AA		C	Resistor(1/4W 4.7KΩ ±5%)	[R15]
85	VRD-HT2EY153J	AA		C	Resistor(1/4W 15KΩ ±5%)	[R16]
86	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R17]
87	VRD-HT2EY203J	AA		C	Resistor(1/4W 20KΩ ±5%)	[R18]
88	VRD-HT2EY203J	AA		C	Resistor(1/4W 20KΩ ±5%)	[R19]
89	VRD-HT2EY221J	AA		C	Resistor(1/4W 220Ω ±5%)	[R27]
90	VRD-HT2EY222J	AA		C	Resistor(1/4W 2.2KΩ ±5%)	[R28]
91	VRD-HT2EY104J	AA		C	Resistor(1/4W 100KΩ ±5%)	[R29]
92	VRNHT2EK1102F	AA		C	Resistor(1/4W 11KΩ ±1%)	[R30]
93	VRD-HT2EY203J	AA		C	Resistor(1/4W 20KΩ ±5%)	[R31]
94	VRD-HT2HY3R0J	AB		C	Resistor(1/2W 3Ω ±5%)	[R32]
95	VRD-HT2EY620J	AA		C	Resistor(1/4W 62Ω ±5%)	[R33]
96	VRD-HT2EY681J	AA		C	Resistor(1/4W 680Ω ±5%)	[R34]
97	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R36]
98	VRD-HT2EY474J	AA		C	Resistor(1/4W 470KΩ ±5%)	[R37]
99	VRD-HT2EY105J	AA		C	Resistor(1/4W 1MΩ ±5%)	[R38]
100	VRD-HT2EY512J	AA		C	Resistor(1/4W 5.1KΩ ±5%)	[R39]
101	VRD-HT2EY561J	AA		C	Resistor(1/4W 560Ω ±5%)	[R40]
102	VRD-HT2EY334J	AA		C	Resistor(1/4W 330KΩ ±5%)	[R41]
103	VRD-HT2EY221J	AA		C	Resistor(1/4W 220Ω ±5%)	[R42]
104	VRS-HT3AAR56J	AB		C	Resistor(1W 0.56Ω ±5%)	[R43]
105	VRD-HT2EY102J	AA		C	Resistor(1/4W 1KΩ ±5%)	[R44]
106	VRD-HT2EY102J	AA		C	Resistor(1/4W 1KΩ ±5%)	[R45]
107	VRS-HT3AAR56J	AB		C	Resistor(1W 0.56Ω ±5%)	[R46]
108	VRD-HT2EY153J	AA		C	Resistor(1/4W 15KΩ ±5%)	[R47]
109	VRD-HT2EY472J	AA		C	Resistor(1/4W 4.7KΩ ±5%)	[R48]
110	VRD-HT2EY512J	AA		C	Resistor(1/4W 5.1KΩ ±5%)	[R49]
111	VRD-HT2EY561J	AA		C	Resistor(1/4W 560Ω ±5%)	[R50]
112	VRD-HT2EY105J	AA		C	Resistor(1/4W 1MΩ ±5%)	[R51]
113	VRHDPT3AF395J	AD		C	Resistor(1W 3.9MΩ ±5%)	[R52]
114	VRH-PT2HF395J	AC		C	Resistor(1/2W 3.9MΩ ±5%)	[R53]
115	VRD-HT2HY3R0J	AB		C	Resistor(1/2W 3Ω ±5%)	[R54]
116	VRD-HT2EY620J	AA		C	Resistor(1/4W 62Ω ±5%)	[R55]
117	VRHYKU3AD257K	AH		C	Resistor(1W 250MΩ ±10%)	[R56]
118	VRHAKU2HD107J	AF		C	Resistor(1/2W 100MΩ ±5%)	[R57]
119	VRHAKU2HD207J	AF		C	Resistor(1/2W 200MΩ ±5%)	[R58]
120	VRHAKU2HD825J	AF		C	Resistor(1/2W 8.2MΩ ±5%)	[R59]
121	VRD-HT2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[R60]
122	VRS-RE3DA101J	AB		C	Resistor(2W 100Ω ±5%)	[R63]
123	VHIKA7805AP-1	AE		B	IC(KIA7805API)	[REG1]
124	RTRNZ0022GCZ1	AL		B	H/V transformer(Z0022)	[T1]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[13] Printer PWB unit						
125	RTRNZ0021GCZZ	AL		B	H/V transformer(Z0021)	[T2]
126	QTANN2046SCZZ	AC		C	Terminal(N2046)	[TC]
127	RVR-M1615QCZZ	AC		C	Variable resistor	[VR1]
128	RVR-M251AQCZZ	AC		C	Variable resistor	[VR2]
129	VHED2.4ESAB11	AC		B	Zener diode(RD2.4ES)	[ZD1]
130	VHERD30JSAB21	AC		B	Zener diode(RD30JS)	[ZD2]
131	VHERD30JSAB21	AC		B	Zener diode(RD30JS)	[ZD3]
132	VHED2.4ESAB11	AC		B	Zener diode(RD2.4ES)	[ZD4]
133	VHE1ZB200Y/-1	AF		B	Zener diode(1ZB200Y)	[ZD5]
134	VHERD100E//-1	AC		B	Zener diode(RD100E)	[ZD6]
135	VHERD100E//-1	AC		B	Zener diode(RD100E)	[ZD7]
	(Unit)					
901	DCEK-213DXH01	CA		E	Printer PWB unit	
[14] Power supply PWB unit						
1	0KYL5051AQ001	AE		C	Ferrite beads(BL02RN1)	[BEA1]
2	0KYL5051AQ002	AF	N	C	Ferrite beads(BL02RN2)	[BEA101]
3	0KYW0000AQ010	AC		C	Wire	[BEA102]
4	0KYC2045QQ104	AK		C	Film capacitor(275WV 0.1µF)	[C1]
5	0KYC2045QQ104	AK		C	Film capacitor(275WV 0.1µF)	[C2]
6	0KYC3132MS470	AU	N	C	Electrolytic capacitor(400WV 47µF)	[C5]
7	0KYC1076QQ102	AW		C	Ceramic capacitor(1000PF)	[C6]
8	0KYC1076QQ472	AL		C	Ceramic capacitor(4700PF)	[C7]
9	0KYC10B2SQ121	AG	N	C	Ceramic capacitor(2KWV 120PF)	[C8]
10	0KYC1102EC223	AC		C	Ceramic capacitor(50WV 0.22µF)	[C9]
11	0KYC1102EC472	AC		C	Ceramic capacitor(50WV 4700PF)	[C10]
12	0KYC10Q1EQ101	AC		C	Ceramic capacitor(50WV 100PF)	[C11]
13	0KYC1076QQ472	AL		C	Ceramic capacitor(4700PF)	[C17]
14	0KYC1095EQ104	AD		C	Ceramic capacitor(50WV 0.1µF)	[C22]
15	0KYC30A0DQ331	AK		C	Electrolytic capacitor(35WV 330µF)	[C101]
16	0KYC1095EQ104	AD		C	Ceramic capacitor(50WV 0.1µF)	[C105]
17	0KYC10A9RQ152	AH		C	Ceramic capacitor(1KWV 1500PF)	[C108]
18	0KYC30A0BQ471	AL		C	Electrolytic capacitor(16WV 470µF)	[C301]
19	0KYC30A0DQ330	AG		C	Electrolytic capacitor(35WV 33µF)	[C302]
20	0KYK2007BQ002	AL		C	Connector(3pin)	[CNAC]
21	0KYK2051AQ002	AG		C	Connector(3pin)	[CNHT]
22	0KYK2014LQ012	AN		C	Connector(12pin)	[CNPW]
23	0KYD4066AQ105	AF		B	Zener diode(HZS30)	[D2]
24	0KYD2095AQ008		N	B	Diode(1SS355)	[D4]
25	0KYD4066AQ075	AE		B	Zener diode(HZS12)	[D5]
26	0KYD2051AQ002	AD		B	Diode(1SS133)	[D6]
27	0KYD2051AQ002	AD		B	Diode(1SS133)	[D7]
28	0KYD1057AQ006	AF		B	Diode(ERA15-06)	[D10]
29	0KYD1057AQ006	AF		B	Diode(ERA15-06)	[D11]
30	0KYD1057AQ006	AF		B	Diode(ERA15-06)	[D12]
31	0KYD1057AQ006	AF		B	Diode(ERA15-06)	[D13]
32	0KYD1057AQ006	AF		B	Diode(ERA15-06)	[D51]
33	0KYD1057AQ006	AF		B	Diode(ERA15-06)	[D52]
34	0KYD2021BQ002	AS		B	Diode(YG911S2)	[D101]
35	0KYD4066AQ048	AF		B	Zener diode(HZS7)	[D110]
36	0KYD2066AQ006	AH		B	Diode(ERA83-006)	[D151]
37	0KYD4061AQ270	AL		B	Zener diode(HZ-27P)	[D202]
38	0KYD20Q1AQ004	AM		B	Diode(EC21QS04)	[D301]
39	0KYD20Q1AQ004	AM		B	Diode(EC21QS04)	[D302]
40	0KYD2051AQ002	AD		B	Diode(1SS133)	[D501]
41	0KYD4068AQ039	AF		B	Zener diode(HZ6)	[D502]
42	0KYK7125AS6R3	AN	N	A	Fuse(AC250V T6.3AH)	[F1]
43	0KYK7101AR2R5	AN		A	Fuse(AC250V T2.5A)	[F2]
44	0KYK7125AS6R3	AN	N	A	Fuse(AC250V T6.3AH)	[F3]
45	0KY0MPS902200	AF		C	Heatsink	[HS1]
46	0KY0MPS902200	AF		C	Heatsink	[HS2]
47	0KY0MPS902200	AF		C	Heatsink	[HS3]
48	0KY0MPS902200	AF		C	Heatsink	[HS4]
49	0KYH1035AQ5R0	AT		B	Integrated circuit(PQ05RD11)	[IC301]
50	0KYW0000AQ015	AC		C	Wire	[J2]
51	0KYW0000AQ015	AC		C	Wire	[J5]
52	0KYW0000AQ007	AC		C	Wire	[J101]
53	0KYW0000AQ010	AC		C	Wire	[J102]
54	0KYW0000AQ015	AC		C	Wire	[J103]
55	0KYW0000AQ015	AC		C	Wire	[J104]
56	0KYL1010KQ223	AS	N	C	Inductor(PLA10A2230R4)	[L1]
57	0KYL1118RS400	AQ		C	Inductor(SN8SP-404JA)	[L3]
58	0KYD7063AQ8R0	AN	N	B	NTC Thermister(NTH7D8R0)	[NTC1]
59	0KYH7148AS001	AM		B	Optical isolater(PC123)	[PC1]
60	0KYH7136AS001	AU	N	B	Optical isolater(3SF21)	[PC2]
61	0KYH7148AS001	AM		B	Optical isolater(PC123)	[PC3]
62	0KYT2717KL002	AY	N	B	FET(2SK2717)	[Q1]
63	0KYT1741CR007	AH		B	Transistor(2SC1741AS)	[Q2]
64	0KYT4081CC002	AF		B	Transistor(2SC4081)	[Q101]
65	0KYT4081CC002	AF		B	Transistor(2SC4081)	[Q501]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[14] Power supply PWB unit						
66	0KYR1066BQ475	AE	N	C	Resistor(1/2W 4.7MΩ)	[R1]
67	0KYR3126TC274	AC	N	C	Resistor(1/8W 270KΩ)	[R2]
68	0KYR3126TC274	AC	N	C	Resistor(1/8W 270KΩ)	[R3]
69	0KYR3126TC274	AC	N	C	Resistor(1/8W 270KΩ)	[R4]
70	0KYR3120TC153	AB		C	Resistor(1/8W 15KΩ)	[R5]
71	0KYR3120TC152	AC	N	C	Resistor(1/8W 1.5KΩ)	[R6]
72	0KYR3121TC391	AC		C	Resistor(1/8W 390Ω ±5%)	[R7]
73	0KYR3111VC333	AB		C	Resistor(1/10W 33KΩ)	[R8]
74	0KYR3111VC101	AB		C	Resistor(1/10W 100Ω)	[R9]
75	0KYR3120TC682	AB		C	Resistor(1/8W 6.8KΩ)	[R11]
76	0KYR3111VC103	AB		C	Resistor(1/10W 10KΩ)	[R12]
77	0KYR3111VC911	AC	N	C	Resistor(1/10W 910Ω)	[R13]
78	0KYR3111VC682	AB		C	Resistor(1/10W 6.8KΩ)	[R16]
79	0KYR3111VC681	AB		C	Resistor(1/10W 680Ω)	[R17]
80	0KYR3121TC680	AC	N	C	Resistor(1/8W 68Ω)	[R19]
81	0KYR3062UQ100	AL		C	Resistor(1/6W 10Ω(FUSE))	[R20]
82	0KYR3121TC220	AC		C	Resistor(1/8W 22Ω)	[R21]
83	0KYR3062UQ151	AG		C	Resistor(1/6W 150Ω(FUSE))	[R23]
84	0KYR1053UQ563	AC	N	C	Resistor(1/4W 56KΩ)	[R51]
85	0KYR3121TC563	AC	N	C	Resistor(1/8W 56KΩ)	[R52]
86	0KYR3121TC563	AC	N	C	Resistor(1/8W 56KΩ)	[R53]
87	0KYR3121TC563	AC	N	C	Resistor(1/8W 56KΩ)	[R54]
88	0KYR3121TC102	AB		C	Resistor(1/8W 1KΩ)	[R101]
89	0KYR3121TC101	AB		C	Resistor(1/8W 100Ω)	[R102]
90	0KYR3123TC334	AC		C	Resistor(1/8W 330KΩ)	[R103]
91	0KYR3120TC153	AB		C	Resistor(1/8W 15KΩ)	[R105]
92	0KYR3053UQ752	AD		C	Resistor(1/4W 7.5KΩ)	[R106]
93	0KYR3121TC562	AC		C	Resistor(1/8W 5.6KΩ)	[R120]
94	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R130]
95	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R131]
96	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R132]
97	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R133]
98	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R134]
99	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R135]
100	0KYR3131AC472	AC	N	C	Resistor(1/4W 4.7KΩ)	[R136]
101	0KYR3131AC472	AC	N	C	Resistor(1/4W 4.7KΩ)	[R137]
102	0KYR3131AC472	AC	N	C	Resistor(1/4W 4.7KΩ)	[R138]
103	0KYR3131AC472	AC	N	C	Resistor(1/4W 4.7KΩ)	[R139]
104	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R501]
105	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R502]
106	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R503]
107	0KYR1053UQ472	AC		C	Resistor(1/4W 4.7KΩ)	[R504]
108	0KYR3121TC333	AB		C	Resistor(1/8W 33KΩ ±5%)	[R505]
109	0KYR1053UQ333	AC	N	C	Resistor(1/4W 33KΩ)	[R507]
110	0KYR3121TC473	AC		C	Resistor(1/8W 47KΩ ±5%)	[R508]
111	0KYR1053UQ473	AC		C	Resistor(1/4W 47KΩ)	[R509]
112	0KYK3103AL001	AS		B	Relay(G5PA-1 or ALKP322)	[RL1]
113	0KYK1040AQ002	AV		C	Switch(MQS-54AS-5J-P)	[SW101]
114	0KYL2000DS141	BA	N	B	Transformer(2D141)	[T1]
115	0KYD5013AQ612	AV		B	Triac(SM12JZ47)	[TRA1]
116	0KYR8054EQ502	AG		C	Variable resistor(1/10W 5KΩ)	[VR101]
117	0KYD7062AQ471	AH	N	C	Suppressor(ENC471)	[Z1]
	(Unit)					
⚠ 901	RDENT2204XHZZ	BR		E	Power supply PWB unit	
[15]Operation panel PWB unit						
1	QSW-M2294XHZA	AE		C	Front sensor	[SW1]
2	QSW-Z2262AXZZ	AE		C	Original sensor	[SW2]
3	QSW-Q2331XHZZ	AE		C	Tact switch	
	(Unit)					
901	DCEKP211DXH01	BM		E	Operation panel PWB unit	

■ Index

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
[C]				
CCASP2176XH52	2-901	BK		E
CCASP2176XH53	2-901	BK		E
CCASP2176XH56	2-901	BK	N	E
CCNWN414BXH01	1-1	AR		C
CFRM-2248SC52	7-1	BT		C
CHLDZ0040PS73	9-1	AR		E
CPLTP0274PS51	8-1	AL		C
[D]				
DCEK-213DXH01	6-1	CA		E
〃	13-901	CA		E
DCEKC688SXHZZ	1-2	CA		E
〃	11-901	CA		E
DCEKC787SXHZZ	1-2	CA		E
〃	11-901	CA		E
DCEKC880SXHZZ	1-2	CA	N	E
〃	11-901	CA	N	E
DCEKL221DXH01	1-3	BN		E
〃	12-901	BN		E
DCEKL221DXH02	1-3	BP		E
〃	12-901	BP		E
DCEKP211DXH01	2-1	BM		E
〃	15-901	BM		E
DHAI-0142GCZZ	6-35	AH		C
DUNT-205CSCZB	10-14	BW		S
DUNT-206CSCZZ	10-15	BW		S
DUNTK0152PSZZ	8-2	AE		C
DUNTW495CSC02	9-901	BN		E
[G]				
GCABA2350XHZB	1-4	BA		D
GCABB2351XHZC	1-6	AX		C
GCABC2352XHZE	1-7	AW		D
GCABD2353XHYB	1-8	AX		D
GCASP2176XHSB	2-2	AU		D
GCASP2176XHSC	2-2	AU		C
GCASP2176XHSE	2-2	AU	N	C
GCOVA2418XHZB	1-9	AR		D
GCOVA2480XHSC	2-3	AP	N	C
GCOVA2480XHSF	2-3	AP		C
GCOVA2480XHSG	2-3	AM		C
GCOVA2481XHSA	10-11	AW		C
GCOVA2482XHSA	10-12	AW		C
GLEGG2085XHZZ	6-2	AK		C
[H]				
HPNLH2435XHZA	1-13	AL		C
〃	2-16	AL		C
HPNLH2435XHZD	1-13	AL	N	C
〃	2-16	AL	N	C
HPNLH2435XHZZ	1-13	AN		C
〃	2-16	AN		C
[J]				
JBTN-2412XHSA	2-4	AK		C
JBTN-2413XHSA	2-5	AG		C
JBTN-2414XHSA	2-6	AG		C
JBTN-2415XHSA	2-7	AF		C
JBTN-2416XHSA	2-8	AF		C
JBTN-2417XHSA	2-9	AK		C
JBTN-2418XHSA	2-10	AG		C
JKNBZ0004GCZZ	6-3	AC		C
[L]				
LANGA2828XHZZ	1-14	AL		C
LANGA2830XHZZ	1-15	AL		C
LANGF2827XHZZ	3-1	AL		C
LANGH2829XHZZ	1-16	AS		C
LANGR2833XHZZ	1-17	AG		C
LANGT2863XHZZ	6-4	AN		C
LBNDJ2006XHZZ	1-19	AA		C
LBOSZ0058GCZ1	7-2	AE		C
LBSHP2121XHZZ	5-1	AF		C
LFIX-0003GCZZ	7-3	AC		C
LFRM-0045GCZ1	8-3	AY		C
LFRM-2213XHZD	5-2	AZ		C
LHLDZ2180XHZZ	5-3	AC		C
LHLDZ2181XHZA	5-4	AC		C
LPLTG3307XHZZ	3-2	AF		C
LPLTM0159GCZ1	6-5	AD		C
LPLTM0163GCZZ	8-4	AE		C
LPLTM0273GCZZ	7-4	AF		C
LPLTM0275GCZ1	8-5	AK		C
LPLTM0282GCZ2	6-6	AD		C
LPLTM3083XHZZ	6-7	BA		C
LPLTM3090XHZZ	3-3	AS		C
LPLTM3091XHZZ	4-1	AK		C
LPLTP2790XHZZ	3-4	AD		C
LPLTP3084XHZB	10-1	AP		C
LPLTP3085XHZB	10-2	AR		C
LPLTP3088XHZB	10-3	AQ		C
LPLTP3089XHYB	1-20	AR		C
LPLTP3094XHZZ	4-2	AL		C
LPLTP3283XHSA	10-4	AR		C
LPLTP3284XHSA	10-5	AP		C
LX-BZ0030GCZZ	9-B6	AB		C
LX-BZ0187FCZ1	7-B3	AA		C
LX-BZ1006LC03	1-B8	AA		C
LX-BZ2138XHZZ	1-B6	AB		C
LX-BZ2205SCZZ	1-B7	AB		C
〃	3-B2	AB		C
LX-BZ2252SCZZ	6-B5	AB		C
LX-BZ2282XHZZ	6-B1	AB		C
LX-BZ3004SC0B	9-B7	AA		C
LX-WZ0017GCZZ	7-W1	AC		C
LX-WZ0018GCZZ	7-W2	AC		C
LX-WZ0019GCZZ	7-W3	AC		C
LX-WZ0044FCZZ	8-W3	AA		C
LX-WZ2011SCZZ	6-W1	AA		C
[M]				
MARMP2025XHZZ	3-5	AF		C
MLEVP0037GCZZ	6-8	AB		C
MLEVP0038GCZZ	8-6	AC		C
MLEVP0039GCZZ	8-7	AC		C
MLEVP0040GCZZ	8-8	AC		C
MLEVP0046GCZZ	7-5	AE		C
MLEVP0089GCZZ	8-9	AC		C
MLEVP0090GCEZ	8-10	AM	N	C
MLEVP0091GCZZ	8-11	AC		C
MLEVP0093GCZZ	6-9	AD		C
MLEVP2330XHZZ	6-32	AK		C
MLEVP2331XHZB	3-6	AL		C
MSPRC0133GCA1	8-12	AB		C
MSPRC0135GCAZ	6-10	AB		C
MSPRC0149GCAZ	7-6	AA		C
MSPRC0155GCA2	8-13	AB		C
MSPRC0159GCAZ	7-7	AB		C
MSPRC0305GCZ2	8-14	AD		C
MSPRC0306GCZZ	8-15	AA		C
MSPRC0309GCZZ	8-16	AB		C
MSPRC0312GCZZ	8-17	AB		C
MSPRC0313GCZZ	8-18	AB		C
MSPRC0314GCZZ	8-19	AB		C
MSPRC0319GCZZ	7-8	AB		C
MSPRC3151XHZZ	6-31	AF		C
MSPRC3153XHZZ	3-7	AF		C
MSPRC3154XHZZ	1-22	AF		C
MSPRC3161XHZZ	1-23	AG		C
MSPRC3163XHZZ	3-8	AF		C
MSPRC3164XHZZ	3-9	AD		C
MSPRC3165XHZZ	1-24	AF		C
MSPRC3166XHZZ	1-25	AF		C
MSPRP0158GCAZ	8-20	AB		C
MSPRP0304GCZZ	8-21	AC		C
MSPRP3054XHFJ	1-26	AD		C
MSPRP3150XHZZ	6-33	AN		C
MSPRP3152XHZZ	3-10	AG		C
MSPRT0137GCAZ	7-9	AC		C
MSPRT0307GCZZ	6-11	AA		C
MSPRT0308GCZZ	9-2	AA		C
MSPRT3162XHZZ	3-11	AF		C
MSPRT3168XHZZ	3-12	AF		C
MSPRT3454XHZZ	8-33	AG	N	C
[N]				
NBRGC0035GCZ1	9-3	AE		C
NBRGP0082GCZZ	9-4	AB		C
NBRGP0104GCZZ	8-22	AC		C
NBRGP0105GCZZ	8-23	AC		C
NBRGP0106GCZZ	6-12	AF		C
NBRGP2141XHZZ	5-5	AH		C
NFANP2002XHZZ	6-29	BK		B
NFANP2003XHZZ	6-30	BK		B
NGERH0071GCZZ	6-13	AC		C
NGERH0072GCZ1	6-14	AD		C
NGERH0076GCZZ	6-15	AC		C
NGERH0077GCZZ	6-16	AC		C
NGERH0078GCZZ	6-17	AC		C
NGERH0080GCZ1	7-10	AE		C
NGERH0083GCZ1	9-5	AE		C
NGERH0094GCZZ	6-18	AC		C
NGERH0096GCZZ	6-19	AC		C
NGERH0169GCZZ	8-24	AC		C
NGERH0171GCZ3	6-20	AE		C
NGERH0172GCZZ	6-21	AH		C
NGERH0173GCZZ	6-22	AD		C
NGERH0174GCZZ	9-6	AD		C
NGERH2275XHZZ	5-6	AC		C
NGERH2277XHZZ	4-3	AC		C
NGERH2279XHZZ	4-4	AC		C
NGERH2363AXZZ	1-27	AC		C
NGERH2380XHZZ	4-5	AC		C
NGERH2395AXZZ	4-6	AD		C
NGERP2318XHZZ	1-28	AD		C
NROLM2501SCZ1	9-7	AY		C
NROLP0109GCZZ	6-23	AY		C
NROLP0112GCZZ	7-11	AR		C
NROLP2332XHZZ	1-29	AD		C
NROLP2334XHZA	3-13	AC		C
NROLP2442SCZZ	6-24	AF		C
NROLP2443SCZA	6-25		N	C
NROLP7046XCZZ	8-25	AX		C
NROLR2333XHZZ	1-30	AP		C
NROLR2507XHZZ	5-7	AS		C
NROLR2508XHZZ	5-8	AU		C
NSFTZ2321XHZZ	1-31	AN		C
NSFTZ2322XHZZ	3-14	AK		C
NSFTZ2323XHZZ	3-15	AL		C
[P]				
PBARM0001GCA1	9-8	AD		C
PBRS-2050XHZZ	3-16	AK		C
PCOVP0038GCAZ	8-26	AA		C
PCOVP0086GCZ1	6-26	AD		C
PCOVP0091GCZ1	9-9		N	C
PCOVP2127XHZB	1-32	AR		D
PCUSG2136XHZZ	6-34	AF		C
PGIDM0078GCZZ	8-27	AM		C
PGIDM2581XHZB	10-6	AL		C
PGIDM2583XHZA	3-17	AN		C
PGIDM2584XHYB	1-34	AV		C
PGIDM2585XHZB	1-35	AK		C
PGIDM2586XHZB	1-36	AK		C
PGIDP2582XHZA	3-18	AV		C
PPIPP0003GCZ1	7-12	AC		C
PPIPP0006GCZ2	7-13	AC		C
PSHEP0161GCZ2	9-10	AC		C
PSHEP0166GCZZ	7-14	AC		C
PSHEP0320GCZ1	7-15	AF		C
PSHEP3795XHZZ	1-37	AF		C
PSHEP3796XHZZ	5-9	AK		C
PSHEZ0190GCZZ	8-29	AC		C
PSHEZ0335GCZZ	7-16	AD		C
PSHEZ3410XHZZ	1-38	AB		C
PSHEZ3497XHZZ	3-19	AN		C
PSHEZ3528XHZZ	4-7	AF		C
PSHEZ3529XHZZ	1-39	AK		C
PSHEZ3530XHZZ	1-40	AF		C
PSHEZ3531XHZZ	1-41	AK		C
PSHEZ3534XHZZ	1-42	AF		C
PSHEZ3792XHZZ	1-43	AF		C
PSHEZ3798XHZZ	1-44	AR		C
PSHEZ3806XHZZ	1-57	AE		C
PSLDM2063XHZZ	1-45	AN		C
PSPAZ0049GCZZ	7-17	AC		C
PTME-0022GCZZ	9-11	AF		C
PWIR-2037XHZZ	6-37	AE		C
〃	7-22	AE		C
[Q]				
QACCE2042XHZZ	6-27	AL		C
QCNCM2401SC0B	11-132	AA		C
QCNCM2401SC0C	11-129	AB		C
〃	13-41	AB		C
QCNCM2436SC4J	11-130	AH		C
QCNCM2498SC0B	11-124	AB		C
QCNCM2548SC1D	12-41	AP		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
QCNCM2575SC1B	13-46	AF		C
QCNCM7014SC0B	11-131	AD		C
QCNCM7014SC0C	11-125	AA		C
QCNCM7014SC0F	11-127	AB		C
QCNCM7014SC0G	11-123	AB		C
QCNCM7014SC1D	11-128	AC		C
QCNCM7022SC0D	13-43	AC		C
QCNCM7022SC0E	13-47	AB		C
QCNCM704BAF06	13-44	AC		C
QCNCWZK11AWZZ	13-42	AG		C
QCNCW2436SC4J	13-45	AH		C
QCNCW2500SC1D	11-126	AG		C
QCNW-387ASCZZ	1-46	AD		C
〃	6-36	AD		C
QCNW-4649XHZZ	10-17	AE		C
QCNWG208BXHZZ	10-17	AF		C
QCNWN410BXHZZ	2-11	AV		C
QCNWN412BXHZZ	5-10	AS		C
QCNWN429BXHZZ	1-55	AK		C
〃	4-8	AK		C
QCNWN430BXHZZ	1-54	AG		C
〃	3-20	AG		C
QCNWN431BXHZZ	1-56	AK		C
QCNWN448ASCZZ	1-10	AQ	N	C
〃	7-21	AQ	N	C
QFS-L1037YCZZ	11-140	AD		A
QFS-T0005GCZZ	9-12	AQ		A
QJAKZ2060SC0D	12-43	AE		C
QJAKZ2060SC0F	12-42	AE		C
QPLGJ2019XHZZ	10-16	AN		C
QSLP-0028GCZZ	8-30	AE		C
QSLP-0029GCZZ	9-13	AD		C
QSLP-0030GCZZ	9-14	AD		C
QSLP-0032GCZZ	8-31	AD		C
QSW-M2294XHZA	2-12	AE		C
〃	15-1	AE		C
QSW-Q2331XHZZ	2-15	AE		C
〃	15-3	AE		C
QSW-Z2262AXZZ	2-13	AE		C
〃	15-2	AE		C
QTANN2046SCZZ	13-59	AC		C
〃	13-60	AC		C
〃	13-64	AC		C
〃	13-67	AC		C
〃	13-126	AC		C
[R]				
RC-FZ3077SCZZ	12-9	AG		C
RC-FZ3079SCZZ	12-8	AG		C
RCILF2125SCZZ	12-51	AF		C
RCORF2124XHZZ	5-11	AE		B
RCORF2125XHZZ	1-48	AE		B
RCORF7013XCZZ	7-18	AH		B
RCRSB2185XHZZ	11-320	AD		B
RCRSP2203XHZZ	11-318	AN		B
RCRSP2204XHZZ	11-319	AN		B
RCRSP2207XHZZ	11-321	AS		B
RDENT2204XHZZ	6-28	BR		E
〃	14-901	BR		E
RDTCT0014GCZZ	9-15	AP		B
RFILN2027XHZZ	12-49	AC		C
〃	12-50	AC		C
〃	12-52	AC		C
〃	12-53	AC		C
RH-DX2007SCZZ	12-92	AC		B
RH-IX2288SCZZ	11-146	BE		B
RH-IX2352XHZZ	11-148	BH		B
RH-IX2356XHZZ	11-141	AL		B
RH-IX2358XHZZ	11-147	BF		B
RH-IX2359XHZZ	11-149	BD		B
RH-IX2360XHZZ	11-316	AL		B
〃	11-317	AL		B
RLMPU0022GCZZ	9-16	AW		B
RMOTS7028XCZZ	7-19	AY		B
RMOTZ2150XHZZ	4-9	BA		B
RPLU-0004GCZZ	7-20	AN		C
RR-TZ3016SCZZ	11-300	AA		C
〃	11-301	AA		C
〃	11-302	AA		C
〃	11-303	AA		C
〃	11-304	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
RR-TZ3016SCZZ	11-305	AA		C
〃	11-306	AA		C
〃	11-307	AA		C
〃	11-308	AA		C
〃	11-309	AA		C
〃	11-310	AA		C
〃	11-311	AA		C
〃	11-312	AA		C
〃	11-314	AA		C
RR-TZ3018SCZZ	11-313	AC		B
〃	11-315	AC		B
RRLYD3436XHZZ	12-40	AP		B
RRLYZ3427SCZZ	12-39	AN		B
RTRNI2165XHZZ	12-94	AG		B
RTRNZ0021GCZZ	13-125	AL		B
RTRNZ0022GCZ1	13-124	AL		B
RUNTZ2125XHZZ	5-12	BU		E
RUNTZ2127XH01	2-14	BC		E
RVR-M1615QCZZ	13-127	AC		C
RVR-M251AQCZZ	13-128	AC		C
[S]				
SPAKA229FXHZZ	10-19	AP		D
SPAKA230FXHZZ	10-20	AP		D
SPAKA231FXHZZ	10-21	AF		D
SPAKC321FXHTZ	10-22	AY	N	D
SPAKP304FXHZZ	10-9	AE		D
SPAKP325DXHZZ	10-7	AD		D
SPAKP354FXHZZ	10-8	AM		D
SPAKP355BXHZZ	10-23	AG		D
SSAKA2340QCZZ	10-24	AA		D
SSAKA3001CCZZ	10-25	AA		D
[T]				
TCAUH0017QSZZ	9-17	AC		D
TCAUS2034SCZZ	1-53	AD		D
TINSE4407XHTZ	10-27	AY	N	D
TINSG4386XHTZ	10-27	BC	N	D
TINSI4398XHTZ	10-27	BB	N	D
TLABG2921XHZZ	1-47	AD		D
TLABH243HXHZZ	1-5	AG	N	D
TLABH345GXHZZ	1-49	AF		D
TLABH369GXHZZ	10-13	AG	N	D
TLABH427GXHZZ	10-13	AQ	N	D
TLABH468GXHZZ	10-13	AL	N	D
TLABH469GXHZZ	1-49	AG	N	D
TLABH470GXHZZ	1-49	AK	N	D
TLABN1235CCZZ	11-323	AA		D
TLABS0080AFZZ	1-33	AA		D
TLABS296AXHZZ	1-47	AC		D
TLABZ0205GCZZ	1-18	AC		D
TLABZ217GXHZZ	10-26	AG	N	D
TLABZ369GXHZZ	10-26	AE	N	D
TLABZ426GXHZZ	10-26	AG	N	D
TLABZ488FXHZZ	1-52	AF		D
〃	2-17	AF		D
[U]				
UBATL2049SCZZ	11-1	AF		B
[V]				
VCCCCY1HH100D	11-72	AA		C
〃	11-74	AA		C
VCCCCY1HH101J	11-33	AA		C
〃	11-34	AA		C
〃	11-35	AA		C
〃	11-36	AA		C
〃	11-37	AA		C
〃	11-38	AA		C
〃	11-94	AA		C
〃	11-110	AA		C
〃	11-111	AA		C
〃	11-120	AA		C
〃	11-121	AA		C
VCCCCY1HH151J	12-28	AA		C
VCCCCY1HH220J	11-50	AA		C
〃	11-51	AA		C
〃	11-101	AA		C
〃	11-102	AA		C
VCCCCY1HH221J	11-15	AA		C
〃	12-21	AA		C
〃	12-22	AA		C
〃	12-24	AA		C
〃	12-25	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCCCCY1HH221J	12-26	AA		C
〃	12-31	AA		C
VCCCCY1HH270J	11-66	AA		C
〃	11-79	AA		C
VCCCCY1HH271J	11-67	AA		C
VCCCCY1HH331J	12-29	AB		C
VCCCCY1HH470J	11-115	AA		C
VCEAEA1CW107M	11-10	AC		C
〃	11-12	AC		C
〃	12-14	AC		C
VCEAEA1CW476M	12-3	AA		C
〃	12-5	AA		C
VCEAEA1EW476M	11-13	AB		C
〃	11-14	AB		C
VCEAEA1HW106M	12-6	AA		C
VCEAEA1HW225M	12-10	AA		C
VCEAEA1HW226M	11-11	AB		C
〃	12-11	AB		C
〃	12-13	AB		C
VCEAGA1EW476M	11-2	AA		C
〃	11-4	AA		C
〃	11-5	AA		C
〃	11-7	AA		C
〃	11-8	AA		C
〃	11-9	AA		C
VCEAGA1HW107M	12-12	AA		C
VCEAGA1VW476M	13-1	AB		C
〃	13-2	AB		C
〃	13-19	AB		C
〃	13-35	AB		C
〃	13-37	AB		C
〃	13-39	AB		C
VCE9GA475V1HM	12-4	AC		C
VCFYDA1HA474J	12-7	AD		C
VCKYCY1AB105K	12-34	AB		C
VCKYCY1AF105Z	11-3	AC		C
〃	11-6	AC		C
〃	11-17	AC		C
〃	11-18	AC		C
〃	11-19	AC		C
〃	11-32	AC		C
〃	11-39	AC		C
〃	11-42	AC		C
〃	11-47	AC		C
〃	11-48	AC		C
〃	11-49	AC		C
〃	11-53	AC		C
〃	11-54	AC		C
〃	11-55	AC		C
〃	11-56	AC		C
〃	11-57	AC		C
〃	11-58	AC		C
〃	11-59	AC		C
〃	11-60	AC		C
〃	11-61	AC		C
〃	11-62	AC		C
〃	11-63	AC		C
〃	11-64	AC		C
〃	11-65	AC		C
〃	11-69	AC		C
〃	11-70	AC		C
〃	11-73	AC		C
〃	11-75	AC		C
〃	11-76	AC		C
〃	11-77	AC		C
〃	11-78	AC		C
〃	11-83	AC		C
〃	11-89	AC		C
〃	11-91	AC		C
〃	11-93	AC		C
〃	11-95	AC		C
〃	11-96	AC		C
〃	11-97	AC		C
〃	11-98	AC		C
〃	11-99	AC		C
〃	11-100	AC		C
〃	11-103	AC		C
〃	11-104	AC		C
〃	11-106	AC		C
VCKYCY1CB104K	11-90	AB		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCKYCY1CB104K	12-32	AB		C
VCKYCY1HB102K	11-21	AA		C
〃	11-71	AA		C
〃	11-92	AA		C
〃	11-108	AA		C
〃	11-113	AA		C
〃	11-114	AA		C
〃	11-116	AA		C
〃	11-117	AA		C
〃	11-119	AA		C
〃	12-16	AA		C
〃	12-20	AA		C
〃	12-27	AA		C
VCKYCY1HB103K	11-82	AA		C
〃	11-84	AA		C
〃	12-23	AA		C
〃	12-33	AA		C
VCKYCY1HB222K	11-28	AA		C
〃	11-29	AA		C
〃	11-30	AA		C
〃	11-31	AA		C
VCKYCY1HB471K	11-81	AB		C
VCKYCY1HB472K	11-85	AA		C
〃	11-112	AA		C
VCKYCY1HB473K	11-43	AA		C
〃	11-44	AA		C
〃	11-45	AA		C
〃	11-46	AA		C
VCKYCY1HF104Z	11-16	AA		C
〃	11-20	AA		C
〃	11-22	AA		C
〃	11-23	AA		C
〃	11-24	AA		C
〃	11-25	AA		C
〃	11-26	AA		C
〃	11-27	AA		C
〃	11-40	AA		C
〃	11-41	AA		C
〃	11-80	AA		C
〃	11-86	AA		C
〃	11-87	AA		C
〃	11-88	AA		C
〃	11-105	AA		C
〃	11-107	AA		C
〃	11-109	AA		C
〃	11-118	AA		C
〃	11-122	AA		C
〃	12-15	AA		C
〃	12-30	AA		C
〃	12-35	AA		C
〃	12-36	AA		C
〃	12-37	AA		C
〃	12-38	AA		C
VCKYPA1HB101K	13-32	AA		C
VCKYPA1HB102K	13-4	AA		C
〃	13-5	AA		C
〃	13-6	AA		C
〃	13-7	AA		C
〃	13-11	AA		C
〃	13-15	AA		C
〃	13-16	AA		C
〃	13-20	AA		C
〃	13-33	AA		C
〃	13-34	AA		C
VCKYPA1HB331K	13-8	AA		C
〃	13-10	AA		C
VCKYPA1HB391K	13-27	AA		C
VCKYQY3AB102K	13-26	AC		C
〃	13-28	AC		C
〃	13-30	AC		C
VCKYQY3DB151K	13-29	AC		C
VCKYQY3FB102K	13-22	AD		C
VCKYQY3JB102K	13-23	AD		C
〃	13-24	AD		C
〃	13-25	AD		C
VCKYTV1HB223K	12-18	AA		C
VCKYTV1HB563K	12-17	AA		C
〃	12-19	AA		C
VCQYNA1HM153K	13-14	AB		C
VCQYNA1HM222K	13-21	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCQYNA1HM472K	13-12	AA		C
〃	13-13	AA		C
VCTYPA1HF104Z	13-3	AC		C
〃	13-9	AC		C
〃	13-17	AC		C
〃	13-18	AC		C
〃	13-31	AC		C
〃	13-36	AC		C
〃	13-38	AC		C
〃	13-40	AC		C
VHDDA204K//-1	11-134	AC		B
〃	11-138	AC		B
〃	11-139	AC		B
VHDDSM1D1//-1	13-48	AB		B
〃	13-51	AB		B
VHDDSS133//-1	12-44	AA		B
〃	12-45	AA		B
〃	13-57	AA		B
〃	13-58	AA		B
VHDHRW0202B-1	11-137	AD		B
VHDSHV02///-1	13-56	AD		B
VHDSHV03///-1	13-52	AE		B
〃	13-53	AE		B
VHDSHV06EN/-1	13-49	AL		B
〃	13-50	AL		B
〃	13-54	AL		B
〃	13-55	AL		B
VHD1SS355//-1	11-133	AB		B
〃	11-135	AB		B
〃	11-136	AB		B
〃	12-46	AB		B
VHEBZX79B47/A	12-102	AH		B
VHED2.4ESAB11	13-129	AC		B
〃	13-132	AC		B
VHEHZ11C3//-1	12-99	AB		B
VHEMTZJ100B-1	12-100	AC		B
VHEMTZJ200B-1	12-98	AC		B
VHEMTZJ4R7B-1	12-96	AC		B
〃	12-97	AC		B
VHERD100E//-1	13-134	AC		B
〃	13-135	AC		B
VHERD30JSAB21	13-130	AC		B
〃	13-131	AC		B
VHE1N4748A/-1	11-322	AC		B
VHE1ZB200Y/-1	13-133	AF		B
VHIA2918SWH//	13-66	AR		B
VHIF004/TB80B	11-142		N	B
VHIF004/TB84A	11-143		N	B
VHIF004/TB85B	11-144		N	B
VHIKA7805AP-1	13-123	AE		B
VHINJM2113M-1	11-151	AG		B
VHINJM2904M-2	12-48	AG		B
VHINJM78L05A1	12-93	AD		B
VHISCE214//-1	11-150	BN		B
VHITHS65//-1A	12-47	AF		B
VHIULN2003AN/	13-65	AE		B
VHI28F4BVET85	11-145	AX		B
VHPSG206S//-1	13-68	AG		B
〃	13-69	AG		B
VHPTLP621-1BL	12-54	AD		B
〃	12-55	AD		B
VHVDSS301L/-U	12-95	AF		B
VHVICPN10//-1	13-61	AD		C
〃	13-63	AD		C
VHVICPN25//-1	13-62	AD		C
VHVRA501PC6-1	12-1	AG		B
〃	12-2	AG		B
VRD-HT2EY000J	13-121	AA		C
VRD-HT2EY101J	12-65	AA		C
〃	12-69	AA		C
VRD-HT2EY102J	13-105	AA		C
〃	13-106	AA		C
VRD-HT2EY103J	12-67	AA		C
〃	12-68	AA		C
〃	12-101	AA		C
〃	13-86	AA		C
〃	13-97	AA		C
VRD-HT2EY104J	13-91	AA		C
VRD-HT2EY105J	13-99	AA		C
〃	13-112	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRD-HT2EY153J	13-85	AA		C
〃	13-108	AA		C
VRD-HT2EY203J	13-87	AA		C
〃	13-88	AA		C
〃	13-93	AA		C
VRD-HT2EY221J	13-89	AA		C
〃	13-103	AA		C
VRD-HT2EY222J	13-90	AA		C
VRD-HT2EY240J	12-71	AA		C
VRD-HT2EY300J	12-70	AA		C
VRD-HT2EY334J	13-102	AA		C
VRD-HT2EY392J	13-81	AA		C
VRD-HT2EY433J	12-64	AA		C
VRD-HT2EY472J	13-79	AA		C
〃	13-84	AA		C
〃	13-109	AA		C
VRD-HT2EY473J	13-80	AA		C
VRD-HT2EY474J	13-98	AA		C
VRD-HT2EY512J	13-100	AA		C
〃	13-110	AA		C
VRD-HT2EY561J	13-101	AA		C
〃	13-111	AA		C
VRD-HT2EY620J	13-95	AA		C
〃	13-116	AA		C
VRD-HT2EY681J	13-96	AA		C
VRD-HT2HY3R0J	13-94	AB		C
〃	13-115	AB		C
VRH-PT2HF395J	13-114	AC		C
VRHAKU2HD107J	13-118	AF		C
VRHAKU2HD207J	13-119	AF		C
VRHAKU2HD825J	13-120	AF		C
VRHDPT3AF395J	13-113	AD		C
VRHYKU3AD257K	13-117	AH		C
VRNHT2EK1102F	13-92	AA		C
VRNHT2EK2002F	13-83	AA		C
VRNHT2EK4701F	13-82	AA		C
VRS-CY1JB000J	11-68	AA		C
〃	11-152	AA		C
〃	11-153	AA		C
〃	11-155	AA		C
〃	11-156	AA		C
〃	11-175	AA		C
〃	11-178	AA		C
〃	11-179	AA		C
〃	11-193	AA		C
〃	11-201	AA		C
〃	11-203	AA		C
〃	11-207	AA		C
〃	11-208	AA		C
〃	11-209	AA		C
〃	11-231	AA		C
〃	11-232	AA		C
〃	11-233	AA		C
〃	11-248	AA		C
〃	11-260	AA		C
〃	11-267	AA		C
〃	11-274	AA		C
〃	11-278	AA		C
〃	11-283	AA		C
〃	11-284	AA		C
〃	11-287	AA		C
〃	11-288	AA		C
〃	11-289	AA		C
〃	11-290	AA		C
〃	11-291	AA		C
〃	11-292	AA		C
〃	11-293	AA		C
〃	11-294	AA		C
〃	11-295	AA		C
VRS-CY1JB101J	11-154	AA		C
〃	11-168	AA		C
〃	11-176	AA		C
〃	11-189	AA		C
〃	11-191	AA		C
〃	11-194	AA		C
〃	11-214	AA		C
〃	11-217	AA		C
〃	11-238	AA		C
〃	11-268	AA		C
〃	11-269	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB101J	11-271	AA		C
〃	11-298	AA		C
VRS-CY1JB102J	11-183	AA		C
〃	11-210	AA		C
〃	11-234	AA		C
〃	11-235	AA		C
〃	11-236	AA		C
〃	11-237	AA		C
〃	11-252	AA		C
〃	11-258	AA		C
〃	11-262	AA		C
〃	12-89	AA		C
VRS-CY1JB103J	11-170	AA		C
〃	11-171	AA		C
〃	11-190	AA		C
〃	11-196	AA		C
〃	11-197	AA		C
〃	11-198	AA		C
〃	11-199	AA		C
〃	11-202	AA		C
〃	11-204	AA		C
〃	11-205	AA		C
〃	11-206	AA		C
〃	11-211	AA		C
〃	11-218	AA		C
〃	11-221	AA		C
〃	11-222	AA		C
〃	11-265	AA		C
〃	11-266	AA		C
〃	11-270	AA		C
〃	11-280	AA		C
〃	11-285	AA		C
〃	11-297	AA		C
〃	12-76	AA		C
〃	12-88	AA		C
VRS-CY1JB104J	11-219	AA		C
〃	11-220	AA		C
〃	11-255	AA		C
VRS-CY1JB105J	11-212	AA		C
〃	11-239	AA		C
〃	11-251	AA		C
VRS-CY1JB106J	11-246	AA		C
VRS-CY1JB151J	11-241	AA		C
〃	11-242	AA		C
〃	11-263	AA		C
VRS-CY1JB183J	11-256	AA		C
VRS-CY1JB201J	11-169	AA		C
〃	11-192	AA		C
〃	11-272	AA		C
VRS-CY1JB202J	11-52	AA		C
〃	11-223	AA		C
〃	11-296	AA		C
VRS-CY1JB203J	11-181	AA		C
〃	11-259	AA		C
VRS-CY1JB222J	11-261	AA		C
〃	12-81	AA		C
VRS-CY1JB223J	12-79	AA		C
〃	12-80	AA		C
VRS-CY1JB224J	11-249	AA		C
〃	11-254	AA		C
VRS-CY1JB271J	11-172	AA		C
〃	11-173	AA		C
〃	11-174	AA		C
〃	11-177	AA		C
〃	11-180	AA		C
〃	11-184	AA		C
〃	11-186	AA		C
〃	11-187	AA		C
〃	11-188	AA		C
〃	11-215	AA		C
〃	11-216	AA		C
〃	11-224	AA		C
〃	11-225	AA		C
〃	11-230	AA		C
〃	11-264	AA		C
〃	11-273	AA		C
〃	11-275	AA		C
〃	11-276	AA		C
〃	11-277	AA		C
〃	11-279	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB271J	11-281	AA		C
VRS-CY1JB273J	12-78	AA		C
〃	12-83	AA		C
VRS-CY1JB330J	11-165	AA		C
〃	11-166	AA		C
〃	11-167	AA		C
〃	11-185	AA		C
〃	11-227	AA		C
〃	11-228	AA		C
〃	11-229	AA		C
〃	11-253	AA		C
VRS-CY1JB332J	12-84	AA		C
〃	12-86	AA		C
VRS-CY1JB333J	11-182	AA		C
〃	11-195	AA		C
VRS-CY1JB364J	12-85	AA		C
VRS-CY1JB391J	12-75	AA		C
VRS-CY1JB392J	12-74	AA		C
VRS-CY1JB471J	11-226	AA		C
〃	11-240	AA		C
〃	11-247	AA		C
VRS-CY1JB512J	11-200	AA		C
VRS-CY1JB561J	11-213	AA		C
VRS-CY1JB562J	11-286	AA		C
VRS-CY1JB680J	11-243	AA		C
〃	11-244	AA		C
〃	11-245	AA		C
VRS-CY1JB681J	11-250	AA		C
〃	11-299	AA		C
VRS-CY1JB751J	12-82	AA		C
VRS-CY1JB823J	11-257	AD		C
VRS-HT3AAR56J	13-104	AB		C
〃	13-107	AB		C
VRS-HT3AA121J	12-66	AA		C
VRS-HT3AA473J	12-63	AA		C
VRS-HT3DA301J	11-164	AA		C
VRS-RE3DA101J	13-122	AB		C
VRS-TP2BD100J	12-73	AA		C
VRS-TS2AD102J	12-91	AA		C
VRS-TS2AD103J	12-72	AA		C
VRS-TS2AD301J	12-77	AA		C
VRS-TS2AD391J	12-87	AA		C
VRS-TS2AD471J	12-90	AA		C
VRSCY1JB2002F	11-282		N	C
VSDTC114ES/-1	13-70	AB		B
VSKTC3198GR-1	12-57	AD		B
VSKTD2092//-1	12-56	AL		B
VSRT1N141C/-1	11-158	AB		B
〃	11-159	AB		B
〃	11-160	AB		B
〃	11-161	AB		B
〃	11-162	AB		B
VSRT1N436C/-1	12-58	AD		B
〃	12-59	AD		B
〃	12-60	AD		B
〃	12-61	AD		B
〃	12-62	AD		B
VS2SA1036KR-1	11-163	AC		B
VS2SA1530AS-1	11-157	AC		B
VS2SA854SR/-1	13-71	AC		B
VS2SA933SS/-1	13-73	AB		B
〃	13-75	AB		B
〃	13-77	AB		B
VS2SC1815GR-1	13-72	AB		B
〃	13-76	AB		B
VS2SD1264-/-1	13-74	AF		B
〃	13-78	AF		B
[X]				
XBPSN30P05K00	9-B1	AA		C
XBPSN30P06KS0	9-B2	AA		C
XEBSD20P06000	2-B1	AA		C
XEBSD26P08000	2-B2	AA		C
XEBSD30P08000	6-B2	AA		C
〃	7-B1	AA		C
〃	8-B1	AA		C
〃	9-B3	AA		C
XEBSD30P10000	1-B1	AA		C
〃	5-B1	AA		C
〃	9-B4	AA		C
XEBSD30P18000	8-B2	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
XEBSD30P30000	1-B2	AA		C
〃	8-B3	AA		C
XEBSE30P08000	1-B3	AA		C
〃	4-B1	AA		C
XEBSF30P12000	1-B4	AA		C
XEBSF30P14000	6-B7	AA		C
XEPSD30P06X00	9-B5	AA		C
XEPSD30P08X00	6-B3	AA		C
XHBSD30P06000	7-B2	AA		C
XHBSD30P08000	6-B4	AA		C
XHBSD30P16000	6-B8	AA		C
XHBSE30P06000	1-B5	AA		C
〃	3-B1	AA		C
〃	6-B6	AA		C
XNGSN30-18000	9-18	AC		C
XPLUW20-14000	8-32	AC		C
XWHSD30-05060	8-W4	AA		C
XWHSD30-05080	8-W1	AA		C
XWSSD30-07000	8-W2	AA		C
XWVUW30-04000	9-W1	AA		C
[0]				
0KYC10A9RQ152	14-17	AH		C
0KYC10B2SQ121	14-9	AG	N	C
0KYC10Q1EQ101	14-12	AC		C
0KYC1076QQ102	14-7	AW		C
0KYC1076QQ472	14-8	AL		C
〃	14-13	AL		C
0KYC1095EQ104	14-14	AD		C
〃	14-16	AD		C
0KYC1102EC223	14-10	AC		C
0KYC1102EC472	14-11	AC		C
0KYC2045QQ104	14-4	AK		C
〃	14-5	AK		C
0KYC30A0BQ471	14-18	AL		C
0KYC30A0DQ330	14-19	AG		C
0KYC30A0DQ331	14-15	AK		C
0KYC3132MS470	14-6	AU	N	C
0KYD1057AQ006	14-28	AF		B
〃	14-29	AF		B
〃	14-30	AF		B
〃	14-31	AF		B
〃	14-32	AF		B
〃	14-33	AF		B
0KYD20Q1AQ004	14-38	AM		B
〃	14-39	AM		B
0KYD2021BQ002	14-34	AS		B
0KYD2051AQ002	14-26	AD		B
〃	14-27	AD		B
〃	14-40	AD		B
0KYD2066AQ006	14-36	AH		B
0KYD2095AQ008	14-24		N	B
0KYD4061AQ270	14-37	AL		B
0KYD4066AQ048	14-35	AF		B
0KYD4066AQ075	14-25	AE		B
0KYD4066AQ105	14-23	AF		B
0KYD4068AQ039	14-41	AF		B
0KYD5013AQ612	14-115	AV		B
0KYD7062AQ471	14-117	AH	N	C
0KYD7063AQ8R0	14-58	AN	N	B
0KYH1035AQ5R0	14-49	AT		B
0KYH7136AS001	14-60	AU	N	B
0KYH7148AS001	14-59	AM		B
〃	14-61	AM		B
0KYK1040AQ002	14-113	AV		C
0KYK2007BQ002	14-20	AL		C
0KYK2014LQ012	14-22	AN		C
0KYK2051AQ002	14-21	AG		C
0KYK3103AL001	14-112	AS		B
0KYK7101AR2R5	14-43	AN		A
0KYK7125AS6R3	14-42	AN	N	A
〃	14-44	AN	N	A
0KYL1010KQ223	14-56	AS	N	C
0KYL1118RS400	14-57	AQ		C
0KYL2000DS141	14-114	BA	N	B
0KYL5051AQ001	14-1	AE		C
0KYL5051AQ002	14-2	AF	N	C
0KYR1053UQ333	14-109	AC	N	C
0KYR1053UQ472	14-94	AC		C
〃	14-95	AC		C
〃	14-96	AC		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
0KYR1053UQ472	14-97	AC		C
〃	14-98	AC		C
〃	14-99	AC		C
〃	14-104	AC		C
〃	14-105	AC		C
〃	14-106	AC		C
〃	14-107	AC		C
0KYR1053UQ473	14-111	AC		C
0KYR1053UQ563	14-84	AC	N	C
0KYR1066BQ475	14-66	AE	N	C
0KYR3053UQ752	14-92	AD		C
0KYR3062UQ100	14-81	AL		C
0KYR3062UQ151	14-83	AG		C
0KYR3111VC101	14-74	AB		C
0KYR3111VC103	14-76	AB		C
0KYR3111VC333	14-73	AB		C
0KYR3111VC681	14-79	AB		C
0KYR3111VC682	14-78	AB		C
0KYR3111VC911	14-77	AC	N	C
0KYR3120TC152	14-71	AC	N	C
0KYR3120TC153	14-70	AB		C
〃	14-91	AB		C
0KYR3120TC682	14-75	AB		C
0KYR3121TC101	14-89	AB		C
0KYR3121TC102	14-88	AB		C
0KYR3121TC220	14-82	AC		C
0KYR3121TC333	14-108	AB		C
0KYR3121TC391	14-72	AC		C
0KYR3121TC473	14-110	AC		C
0KYR3121TC562	14-93	AC		C
0KYR3121TC563	14-85	AC	N	C
〃	14-86	AC	N	C
〃	14-87	AC	N	C
0KYR3121TC680	14-80	AC	N	C
0KYR3123TC334	14-90	AC		C
0KYR3126TC274	14-67	AC	N	C
〃	14-68	AC	N	C
〃	14-69	AC	N	C
0KYR3131AC472	14-100	AC	N	C
〃	14-101	AC	N	C
〃	14-102	AC	N	C
〃	14-103	AC	N	C
0KYR8054EQ502	14-116	AG		C
0KYT1741CR007	14-63	AH		B
0KYT2717KL002	14-62	AY	N	B
0KYT4081CC002	14-64	AF		B
〃	14-65	AF		B
0KYW0000AQ007	14-52	AC		C
0KYW0000AQ010	14-3	AC		C
〃	14-53	AC		C
0KYW0000AQ015	14-50	AC		C
〃	14-51	AC		C
〃	14-54	AC		C
〃	14-55	AC		C
0KY0MPS902200	14-45	AF		C
〃	14-46	AF		C
〃	14-47	AF		C
〃	14-48	AF		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK

SHARP

COPYRIGHT © 2003 BY SHARP CORPORATION

ALL RIGHTS RESERVED.

No part of this publication may be reproduced,
stored in a retrieval system, or transmitted in
any form or by any means, electronic, mechanical,
photocopying, recording, or otherwise, without
prior written permission of the publisher.

SHARP CORPORATION
Communication Systems Group
Quality & Reliability Control Center
Higashihiroshima, Hiroshima 739-0192, Japan

A0312-SS•IS•T